DECEMBER 8, 1945

Railway Age

Founded in 1856

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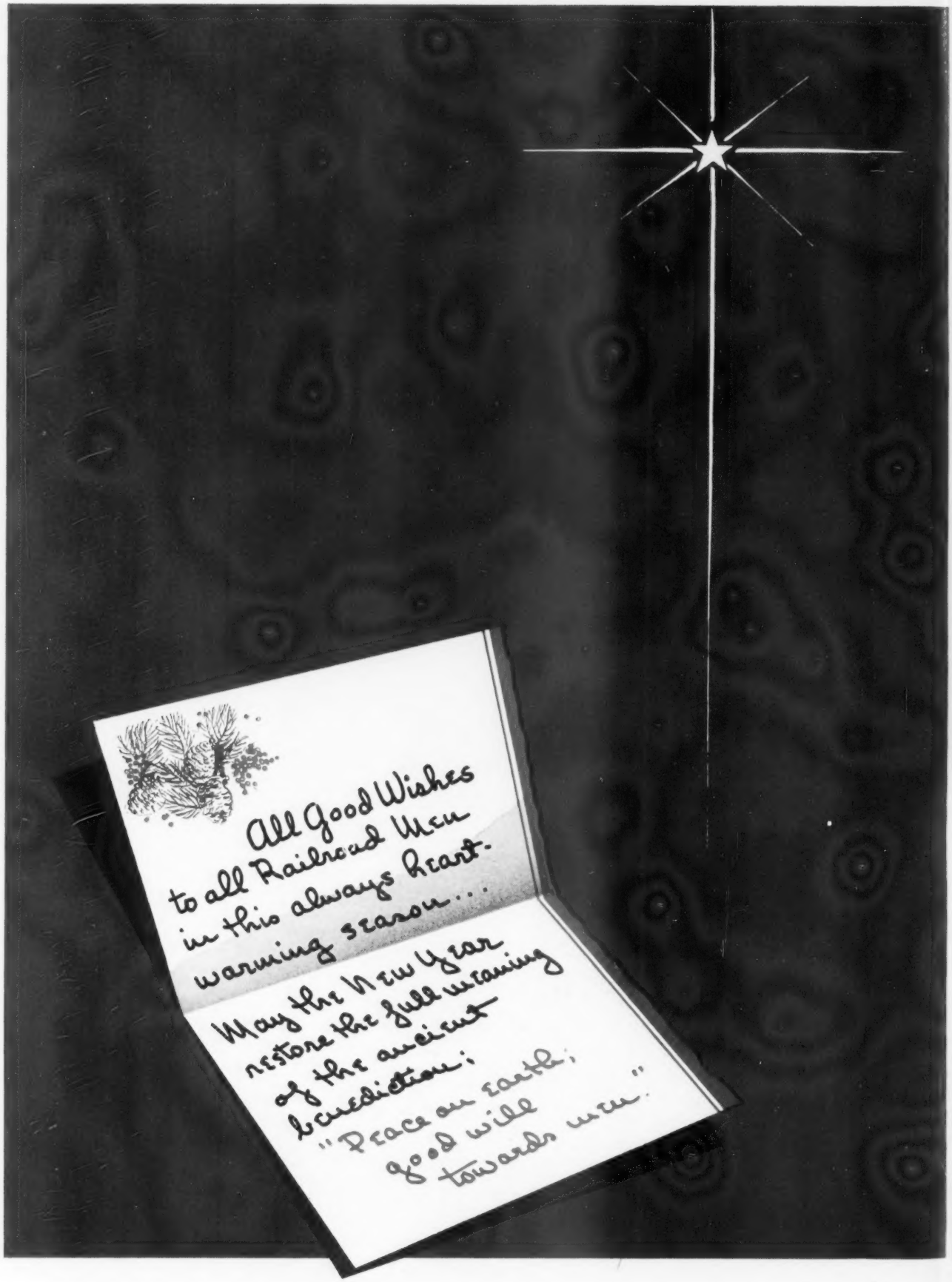
TIGHT DOORS
..carry fine lading farther!

MASTER DOOR LOCKS

THE WINE RAILWAY APPLIANCE COMPANY • TOLEDO 9, OHIO



ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

230 PARK AVENUE, NEW YORK 17, N. Y. • 445 NORTH SACRAMENTO BOULEVARD, CHICAGO 12, ILL.

Organized To Achieve: Uniform Specifications — Uniform Inspection — Uniform Product

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 119, No. 23.

Want longer firebox service?

If you're looking for firebox steel that is capable of giving long, satisfactory service—steel that will help your locomotives to spend more time out on the road, and less in the shops—choose Bethloc Firebox Plates.

Because of their toughness, ductility and uniform grain structure, Bethloc Firebox Plates are ideal for today's heavy loads and rigorous schedules. They're made from a special low-carbon steel which offers great resistance to the severe stresses caused by sudden temperature changes and vibration. Bethloc Firebox Plates are but little affected by aging, and they fully meet railroad requirements for strength, elasticity and elongation.

But when it's all been said the strongest recommendation we can think of is this: *Bethloc Firebox Plates are currently in use in locomotives on more than forty American railroads.*

Bethloc BETHLEHEM STEEL

FIREBOX PLATES

car axles

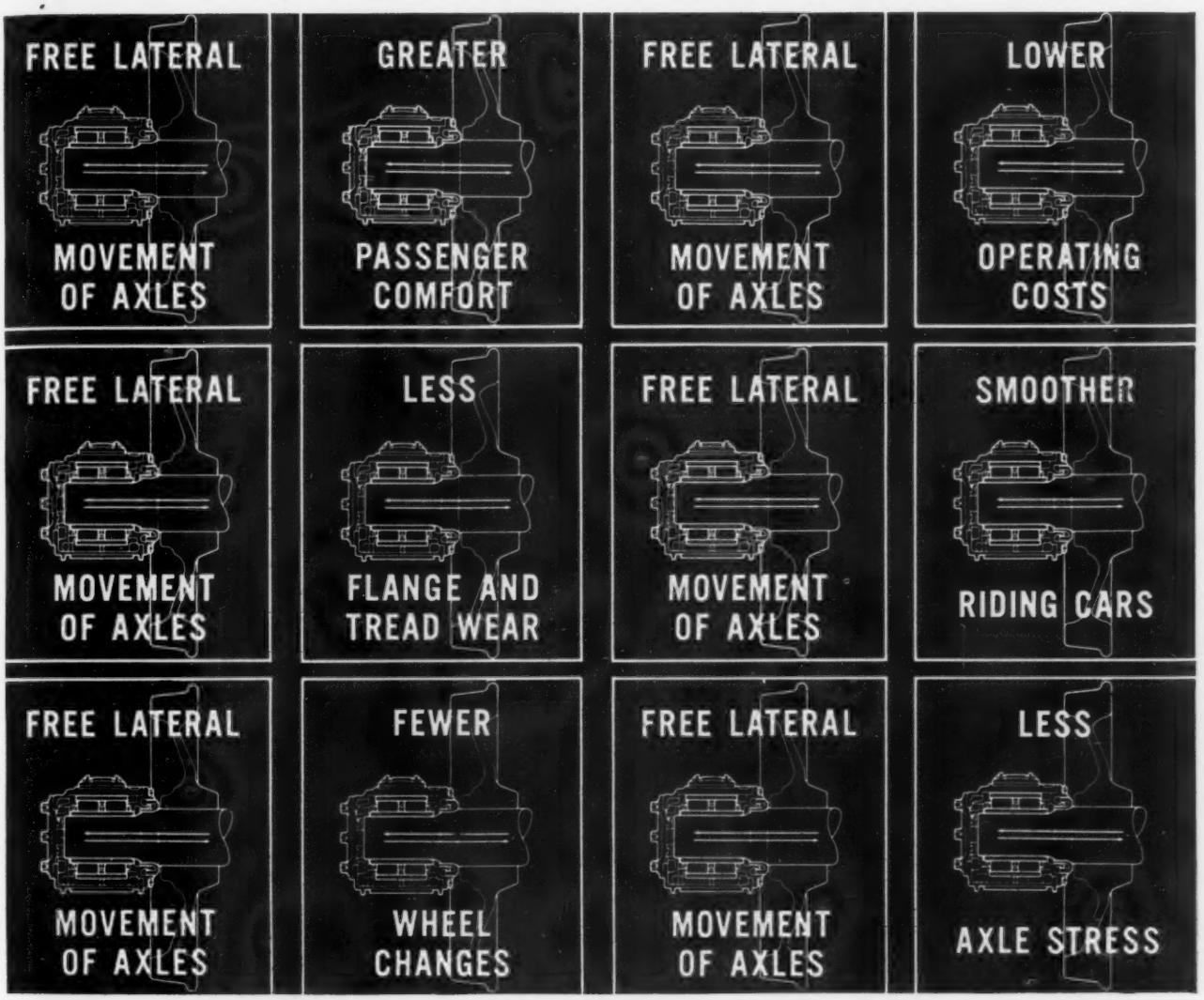
that are "on the beam" because quality is maintained through all stages of production.

Car, Locomotive tender, and Locomotive axles furnished to all specifications

STANDARD FORGINGS CORP.

Plant: INDIANA HARBOR STATION, EAST CHICAGO, INDIANA

General Offices: RAILWAY EXCHANGE BLDG., CHICAGO 4, ILL.



Free Lateral Movement of Axles

Hyatt Roller Bearing Railroad Journal Boxes are designed with lateral clearance between the end of the axle and the axle block or thrust bearing, making it possible for the axle to "float" laterally in the truck.

Our straight cylindrical rollers, and inner races that are permanently shrunk onto the axles in installation, lend themselves ideally to this free lateral movement of the axle and inner race within the roller assembly and journal box.

This feature reduces flange wear to a minimum, cuts operating costs and improves riding qualities.

The use of straight cylindrical rollers also makes it possible to remove Hyatt journal boxes and roller assemblies from axles easily and without special tools, thus facilitating wheel changes and substantially reducing maintenance costs.

When you plan the purchase of new cars or the changeover of existing brass equipment specify Hyatt Roller Bearing—free lateral journal boxes.

Hyatt Bearings Division—General Motors Corporation, Harrison, New Jersey.

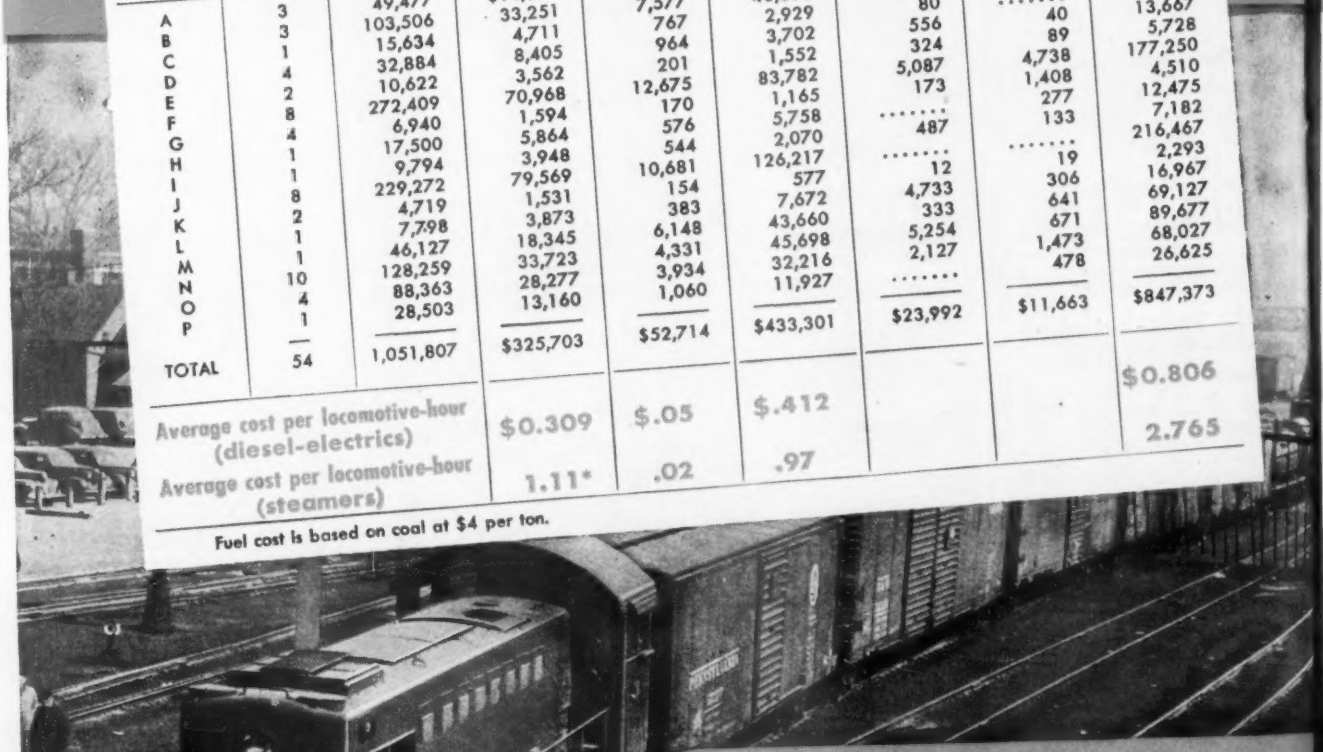
HYATT ROLLER BEARING RAILROAD JOURNAL BOXES

1,000,000 LOCOMOTIVE-

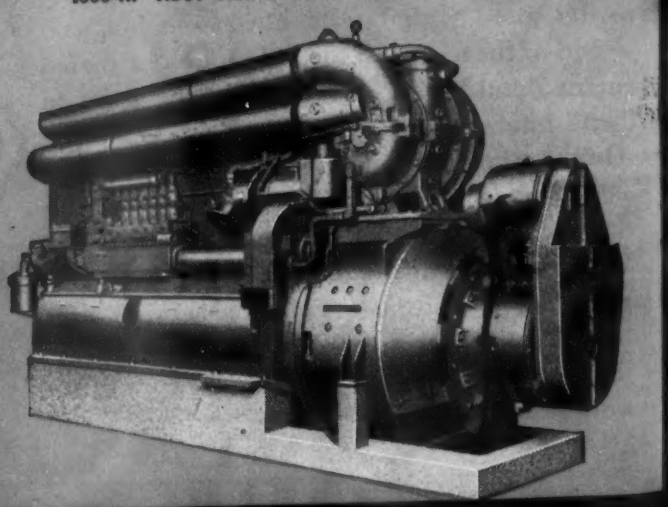
OPERATING RECORDS OF 54 ALCO-G.E. 660-HP DIESEL-ELECTRICS

RR	No. of Locomotives	Hours Operated	Fuel	Lubrication	Maintenance	Engine House	Misc.	Total
A	3	49,477	$14,922	$2,549	$23,483	$220	$754	$41,928
B	3	103,506	33,251	7,577	40,893	4,606	636	86,963
C	1	15,634	4,711	767	2,929	80	.....	8,487
D	4	32,884	8,405	964	3,702	556	40	13,667
E	2	10,622	3,562	201	1,552	324	89	5,728
F	8	272,409	70,968	12,675	83,782	5,087	4,738	177,250
G	4	6,940	1,594	170	1,165	173	1,408	4,510
H	1	17,500	5,864	576	5,758	.....	277	12,475
I	1	9,794	3,948	544	2,070	487	133	7,182
J	8	229,272	79,569	10,681	126,217	.....	.....	216,467
K	2	4,719	1,531	154	577	12	19	2,293
L	1	7,798	3,873	383	7,672	4,733	306	16,967
M	1	46,127	18,345	6,148	43,660	333	641	69,127
N	10	128,259	33,723	4,331	45,698	5,254	671	89,677
O	4	88,363	28,277	3,934	32,216	2,127	1,473	68,027
P	1	28,503	13,160	1,060	11,927	.....	478	26,625
TOTAL	54	1,051,807	$325,703	$52,714	$433,301	$23,992	$11,663	$847,373
Average cost per locomotive-hour (diesel-electrics)			$0.309	$.05	$.412			$0.806
Average cost per locomotive-hour (steamers)			1.11*	.02	.97			2.765

Fuel cost is based on coal at $4 per ton.



1000-HP ALCO-G.E. 4-CYCLE ENGINE AND GENERATOR



Alco

AMERICAN LOCOMOTIVE

HOURS ON 16 RAILROADS...

prove fuel and maintenance costs of Alco-G.E. units are 65% less than those of steamers

THE operating records of 16 railroads (covering 54 Alco-G.E. 660-hp units over periods as long as eight years) reveal fuel costs that average less than one-third, and maintenance costs that average less than one-half, those of five-year-old steamers doing similar work. The total of all locomotive operating expenses, less wages, of these 54 diesel-electrics averages only 30 per cent of the same costs of steamers.

One reason why savings are so high with Alco-G.E. diesel-electrics is that each component is specially designed for operating economy. For example, the 4-cycle engine has these advantages:

1. LOW FUEL CONSUMPTION. Cylinder pressures and temperatures are inherently low, reducing the possibility of blow-by and incomplete or premature combustion, all of which waste fuel.

2. LESS MAINTENANCE. A reversal of load, which allows both sides of the piston pin to be thoroughly lubricated, lengthens the periods between recommended inspections to two years, or 16,000 hours of operation.

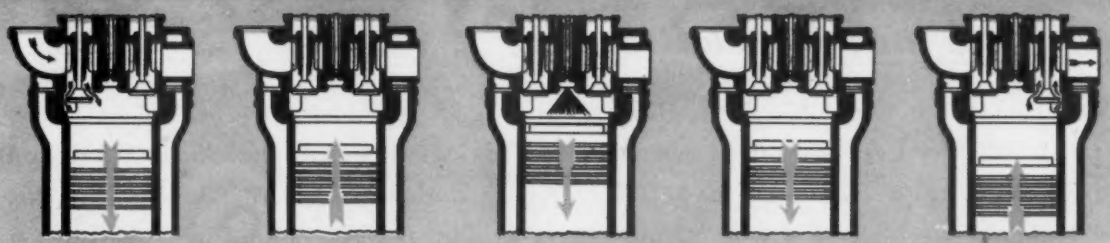
3. LONG ENGINE LIFE. There is no overheating and weakening of engine parts nor rapid oxidation of lubricants—the three strokes between combustion strokes allow ample time for cooling.

4. LESS LUBE OIL USED. The cylinder liners, which receive the brunt of engine wear, are smooth, perfectly symmetrical and portless; this prevents ring sticking, sludge deposits, and varnishing which increase lubricating oil consumption.

In addition to providing operating economies, these advantages of Alco-G.E. diesel-electrics also account for their higher-than-average availability and "use-ability." On one eastern road, where eight units are averaging 98.7 per cent availability, the utilization factor is 87.3 per cent, and the locomotives still have extra locomotive-hours available for emergency work.

These results are typical. What Alco-G.E. diesel-electrics can do for you can best be determined by a motive-power survey for which we offer the services of our engineers. Our recommendations will be impartial. We build all three types of motive power—diesel-electric, electric, and steam.

STEP-BY-STEP OPERATION OF THE ALCO-G.E. 4-CYCLE ENGINE



1. Suction stroke 2. Compression stroke 3. Working stroke a. Fuel injection b. Expansion 4. Exhaust stroke

1. Piston descends and draws air into the cylinder through the inlet valve. 2. Piston ascends with all valves closed and compresses the air. 3. Piston descends. First (a), fuel enters and ignites. Second (b), after about one-tenth of the stroke, fuel valve closes, and the burning mixture expands. 4. Piston ascends and expels burnt gases through the exhaust valve.

and GENERAL ELECTRIC

Six Times around the world

AMERICA'S FIRST

It's been "On the Go" continually . . .

. . . ever since the Great Northern Railway put it in special service on passenger trains a year ago . . . has traveled 148,500 miles; equivalent to practically six times around the earth. In ordinary freight service a boxcar will travel approximately 15,000 miles per year.

This experimental car of Alcoa Aluminum has proved its ability to take punishment. It is "in perfect condition". ALUMINUM COMPANY OF AMERICA, 2178 Gulf Building, Pittsburgh 19, Pennsylvania.

FACTS ABOUT GREAT NORTHERN'S ALCOA ALUMINUM BOXCAR

Inside Dimensions: 40'-6" long; 9'-2" wide; 10' high.

Weight: 43,500 pounds.

Nominal Capacity: 50 tons.

Load Limit: 125,500 pounds.

Amount of Aluminum used: 3,722 pounds.

Savings in Weight by using Aluminum: 4,057 pounds.

Outside sheathing, roof, corrugated ends, doors, floor-protective doorway plates, corner posts, running boards and brake step—all are made of high-strength Alcoa Aluminum. Aluminum alloy rivets were used in assembling.

ALUMINUM BOXCAR

CLASS OF SERVICE
This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION 1201

(54)

A. N. WILLIAMS
PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

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J O CHESLEY,MGR R R DIV ALUMINUM COMPANY OF AMERICA=
801 GULF BLDG PGH=

GREAT NORTHERN EXPERIMENTAL ALUMINUM BOX CAR #2500 THE FIRST ALUMINUM BOX CAR IN AMERICA HAS JUST COMPLETED FIRST YEARS SERVICE OF WHICH 204 DAYS WERE ON FAST PASSENGER TRAINS BETWEEN CHICAGO TWIN CITIES AND WEST COAST AND BALANCE IN INTERLINE SERVICE. TOTAL MILEAGE APPROXIMATELY 148,500 MILES. USED TO CARRY SPECIAL EXPRESS. INSPECTION SHOWS CONDITION PERFECT=

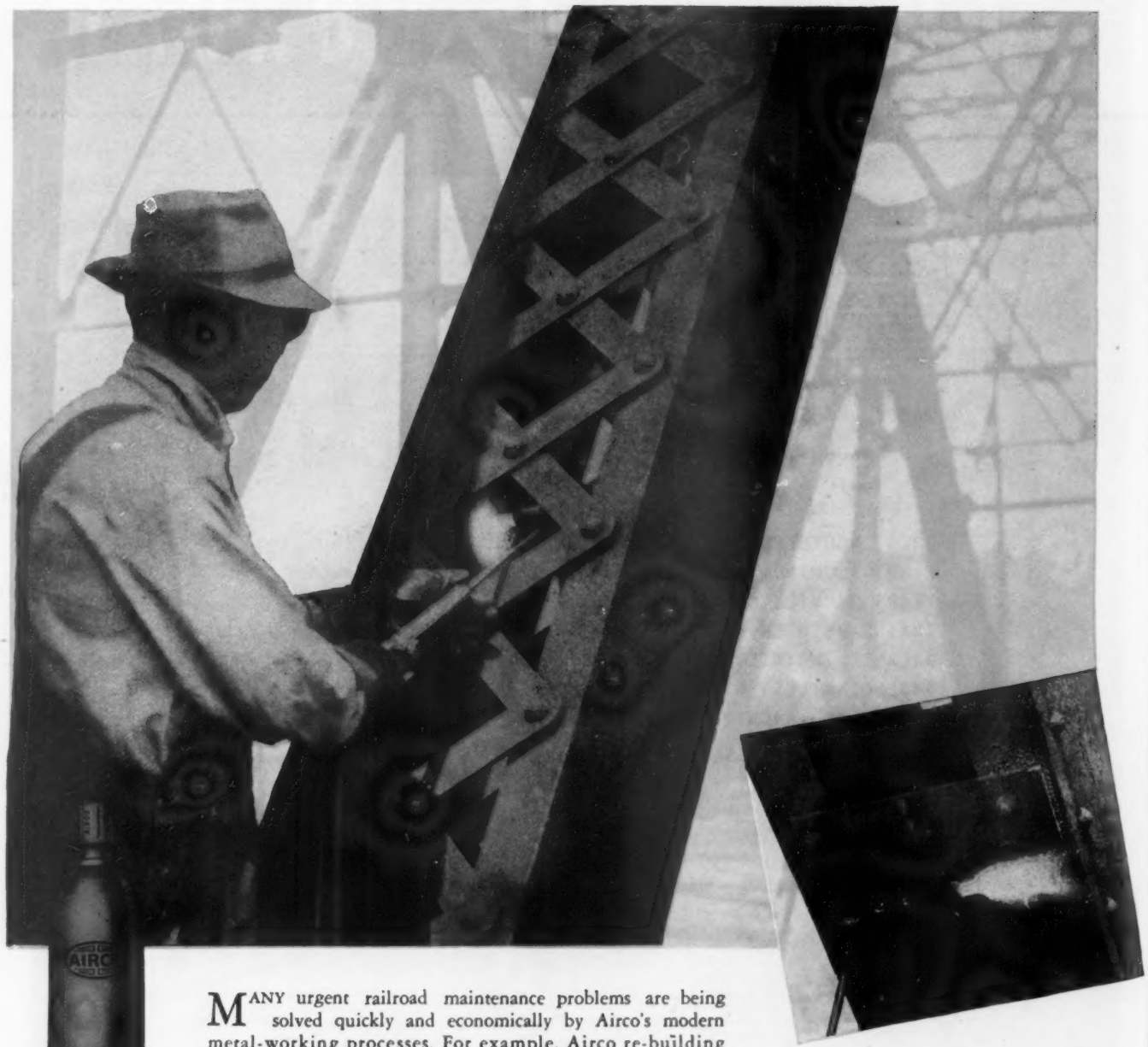
E T HUTCHINSON.

Built by Great Northern with Alcoa Aluminum

ALCOA FIRST IN ALUMINUM

ALCOA ALUMINUM

Faster and Better Maintenance



MANY urgent railroad maintenance problems are being solved quickly and economically by Airco's modern metal-working processes. For example, Airco re-building methods swiftly restore battered rail ends, worn switch points and frogs to excellent condition, at surprisingly low cost and with minimum interruption to traffic. Other Airco methods simplify maintenance of railroad structures such as stations, bridges, and signal towers, as well as track tools and equipment.

These versatile methods not only save time and cost but, in many cases, they add years to the service life of the equipment or structures. Airco's Applied Engineering Department will gladly give full information or technical aid on any use of these processes. For complete details, write any Airco office or Dept. R A at the New York address.

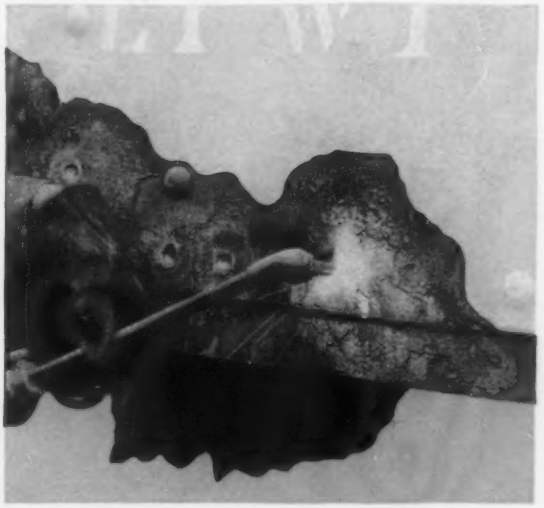
Flame Cleaning and Dehydrating is the fast, efficient method of preparing metal surfaces for painting. It quickly loosens scale and rust to permit their easy removal. The clean warm surface makes paint cling closer, last longer. Note the results in the inset photo. Airco supplies tips for cleaning flat or irregular surfaces.

AIRCO

with Modern Airco Processes

Butt Welding by the oxyacetylene method eliminates much of the maintenance necessary on jointed rails. It may be performed either in or out of traffic. This method is economical in application and in maintenance savings.

Arc Welding is another Airco process of proven value to maintenance men. Here a reinforcing plate is being welded onto an I-beam with the electric arc.



Rivet Washing with Airco oxyacetylene cutting torches is fast and economical. Airco Style 144 tip is used to "wash out" the rivet head, then pierce the rivet shank so that it can be dislodged easily with a rivet hammer.

Crowning Angle Bars by the use of Airco oxyacetylene heating torches takes the dip out of the bars, raises them to normal position, and thus reduces the length of welding needed to restore a uniform rail end surface.

AIR REDUCTION

General Offices: 60 EAST 42nd STREET, NEW YORK 17, N. Y.

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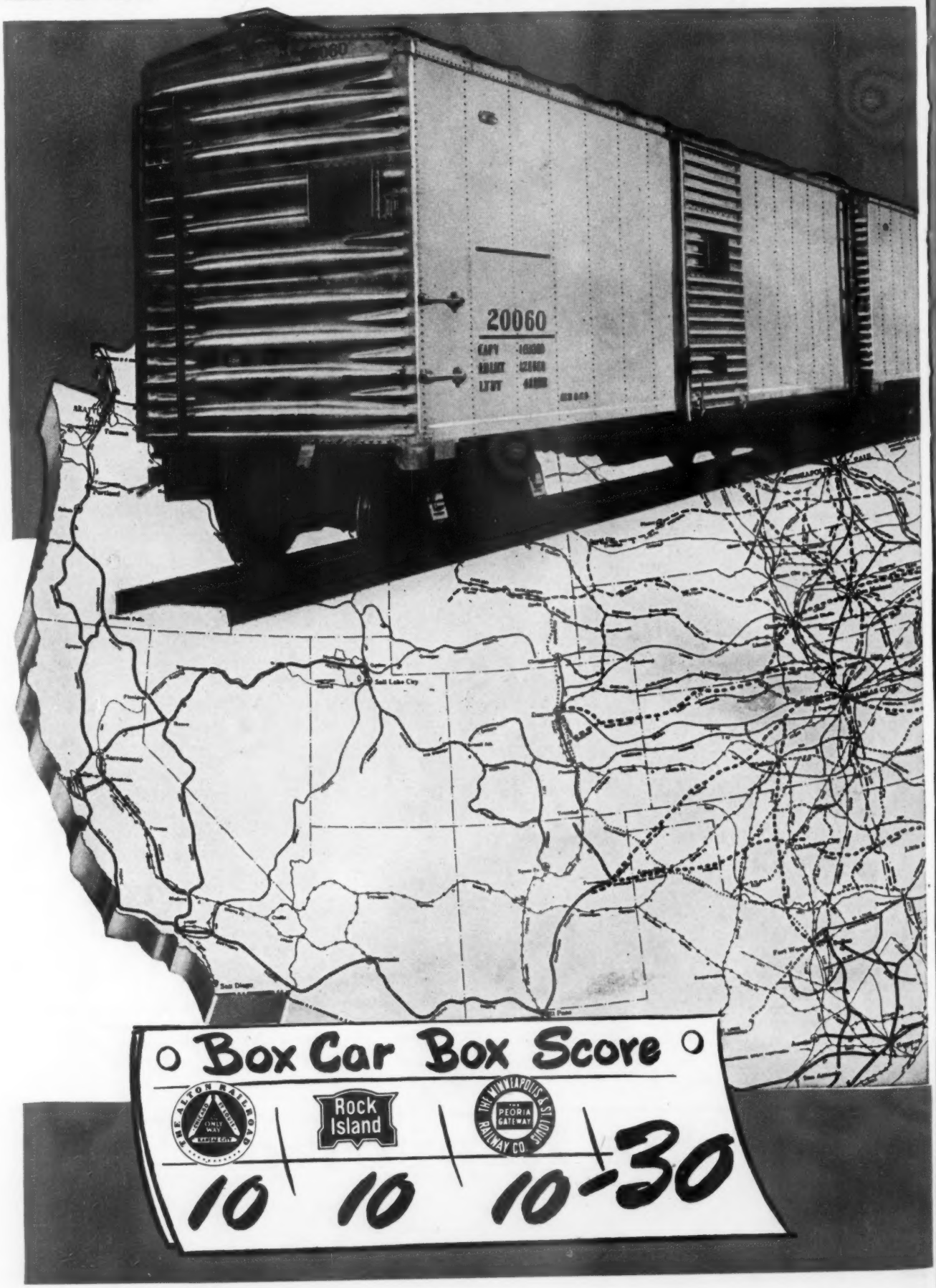


ON ALUMINUM?

ALL OVER THE MAP...

30 REYNOLDS DESIGNED ALUMINUM BOX CARS

—now on interchange service anywhere in the United States

NEVER BEFORE have so many improvements been combined in one single unit!

TAKE WEIGHT . . . up to 5 tons lighter than conventional cars, yet with greater structural strength, thanks to great new Reynolds Aluminum alloys.

TAKE SPEED . . . when equipped with A.A.R. trucks, these cars can be safely cut into trains with speeds in excess of 85 m.p.h.

TAKE ECONOMY . . . aluminum's high corrosion-resistance reduces maintenance costs . . . the tons of weight saved means increased pay-load . . . reduced fuel costs.

New battle-tested alloys developed by Reynolds as "armor plate" for warplanes, make practical improved cars for *all* types of rolling stock. Right now Reynolds is building an aluminum refrigerator car and invites railroads to watch for a special announcement.

Reynolds welcomes inquiries. Blueprints available. Write Reynolds Metals Co., Railway Supply Division, 310 So. Michigan Boulevard, Chicago, Illinois.

Buy Victory Bonds Now . . . and HOLD Them

REYNOLDS METALS

REYNOLDS ALUMINUM

The Great New Source of

INGOT • SHEET • SHAPES • WIRE • ROD • BAR • TUBING • PARTS • FORGINGS • CASTINGS • FOIL • POWDER

1,239,970 Miles

between first and second shopping periods

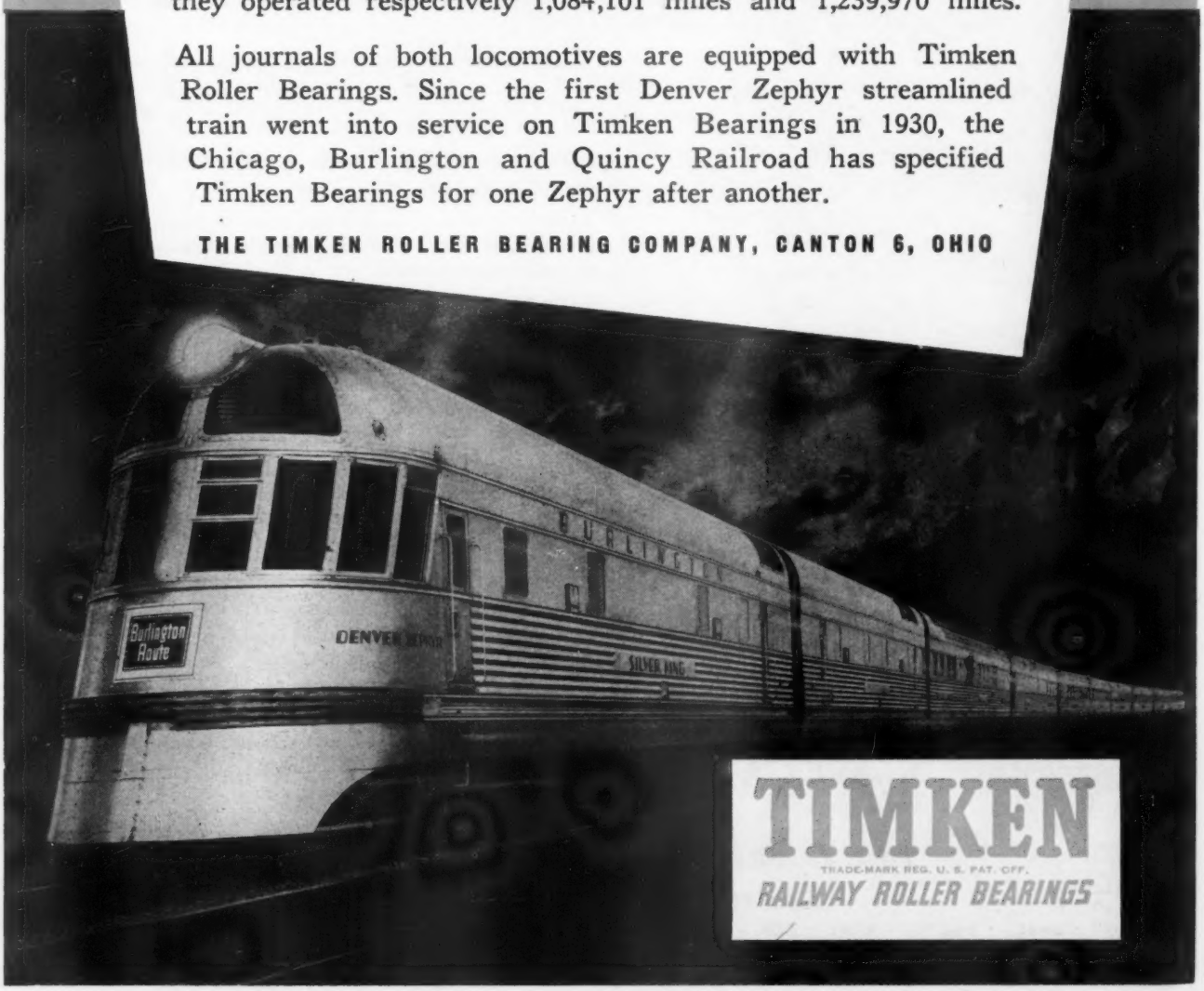
That's Availability

A striking example of the ability of Timken Bearings to keep 'em rolling is afforded by Burlington Diesel locomotives Numbers 9906 and 9907 in service on the Denver Zephyr (Denver-Chicago).

These locomotives were placed in service in October, 1936. Before their first shopping period they rolled up 792,839 miles and 690,212 miles respectively. Between their first and second shopping periods they operated respectively 1,084,101 miles and 1,239,970 miles.

All journals of both locomotives are equipped with Timken Roller Bearings. Since the first Denver Zephyr streamlined train went into service on Timken Bearings in 1930, the Chicago, Burlington and Quincy Railroad has specified Timken Bearings for one Zephyr after another.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO



TIMKEN

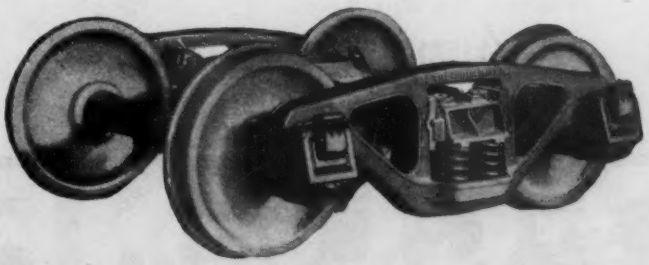
TRADE-MARK REG. U. S. PAT. OFF.

RAILWAY ROLLER BEARINGS

A check through our alphabetical list of users from "Alton" to "Western Pacific" will show you that A.S.F. Ride-Control Trucks are delivering their softer, smoother rides on leading lines everywhere. It's the modern freight car truck for cars of all types.

MINT-MARK OF ⬡ FINE CAST STEEL

Over 18,000 sets of this modern freight car truck are already in service or on order by 44 railroads or private car owners.



A·S·F *Ride-Control* TRUCK (A-3)

NO SPRING PLATES—NO SPRING PLANKS

LONG SPRING TRAVEL · CONSTANT FRICTION CONTROL

AMERICAN STEEL FOUNDRIES

CHICAGO

SHAKE-OUTS

LARGE AND SMALL...MADE

Dust Free!

AAF

engineered sidehoods and Type W Roto-Clones collect all the airborne dust from shake-outs

Shake-out hood connected to a Type W Roto-Clone, as shown above, makes an efficient dust control combination and prevents dust and fume dispersion to the surrounding work area. Equipment does not interfere with the operation of the shake-out crane and requires a minimum of space and piping to collect, precipitate and store the dust. The superintendent of the foundry that made the above installation wrote, "Our dust condition was terrible . . . now we have practically a dustless foundry . . . the Roto-Clone really does a job." Write for complete information, and Bulletin No. 274 A.

AMERICAN AIR FILTER CO., INC.
111 Central Avenue • Louisville 8, Kentucky
IN CANADA: DARLING BROTHERS, LTD., MONTREAL, P. Q.

TYPE W

ROTO-CLONE

WATER SPRAY DYNAMIC PRECIPITATOR

"Yes sir! We have steel ready for your reconversion needs —*call us*"

UNITED STATES STEEL SUPPLY COMPANY

USS

STEELS

SERVICE

Our present stocks include all standard grades and sizes of U·S·S Stainless Steels, and a complete line of Carbon Steel Products. These stocks are being increased as rapidly as circumstances permit. Our aim is to have the widest possible variety of materials on hand to help you speed reconversion efficiently and resume peacetime production quickly.

When you need steel, steel products, tools, equipment or machinery get in touch with the nearest of our nine warehouses. They are located in key manufacturing areas, and deliveries can be made quickly to any point. If it should happen that an order cannot be filled by one warehouse, it usually can be shipped promptly from another.

Every order and inquiry, whether for a pound or a carload, receives courteous attention and prompt action.

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UNITED STATES STEEL

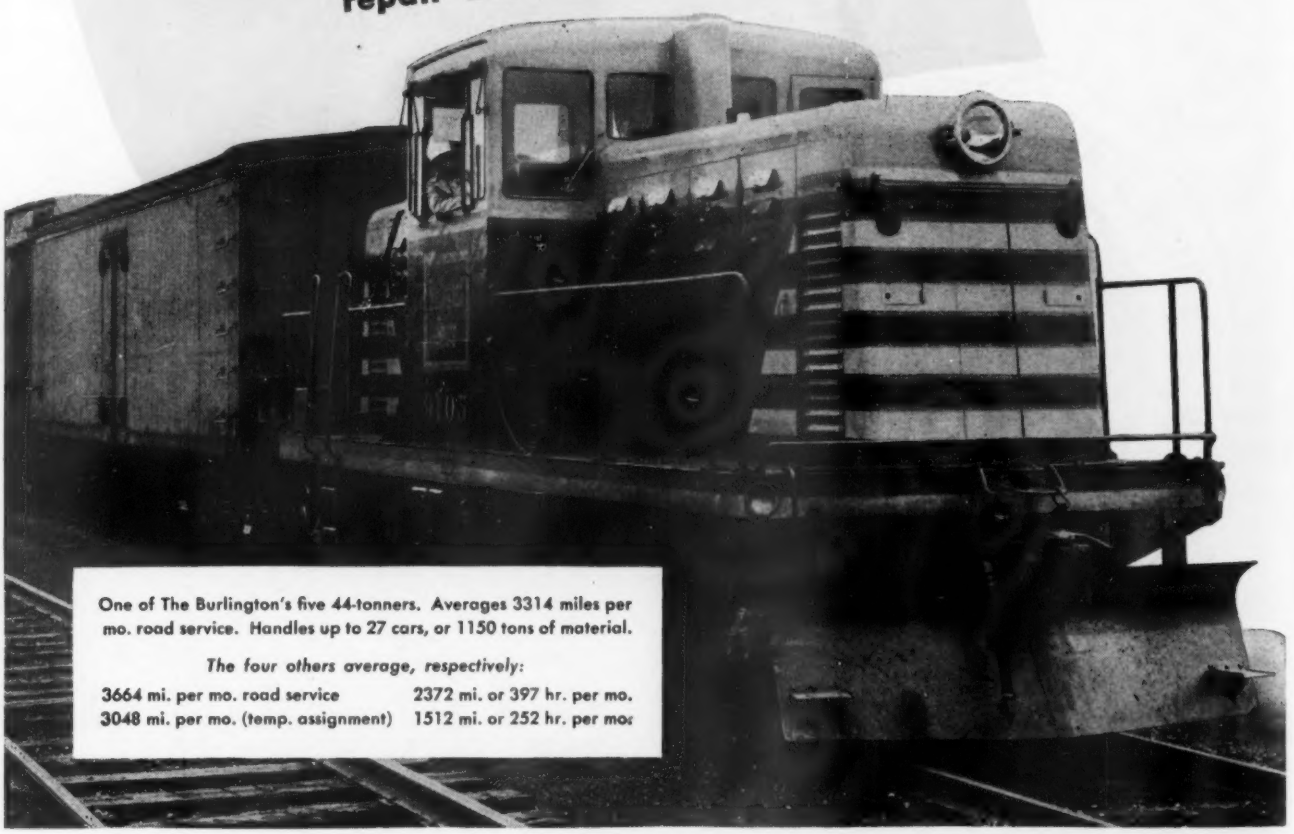
THE BURLINGTON'S

5 44-TONNERS in

3¾ YEARS' SERVICE were

93.6% AVAILABLE at only

$0.1041 PER MILE accumulated repair and maintenance cost



One of The Burlington's five 44-tonners. Averages 3314 miles per mo. road service. Handles up to 27 cars, or 1150 tons of material.

The four others average, respectively:

3664 mi. per mo. road service	2372 mi. or 397 hr. per mo.
3048 mi. per mo. (temp. assignment)	1512 mi. or 252 hr. per mo.

This record of economy and availability is not even approached with other types of power in locomotives of like class. Mr. E. F. Weber, the Burlington Lines' Superintendent of Automotive Equipment, sums up his account like this:

"All of these locomotives have been in service since March, 1941, and up to January 1, 1945, none have been in the shops for heavy or general repairs. The accumulated maintenance and repair cost of the five locomotives amounted to $0.1041 per mile, and during said period they were (mechanically) available for service 93.6% of their assigned time. During the entire period of operation the 'Caterpillar' Diesel D-17000 Engines in these five 44-ton locomotives have performed in a most efficient and reliable manner."

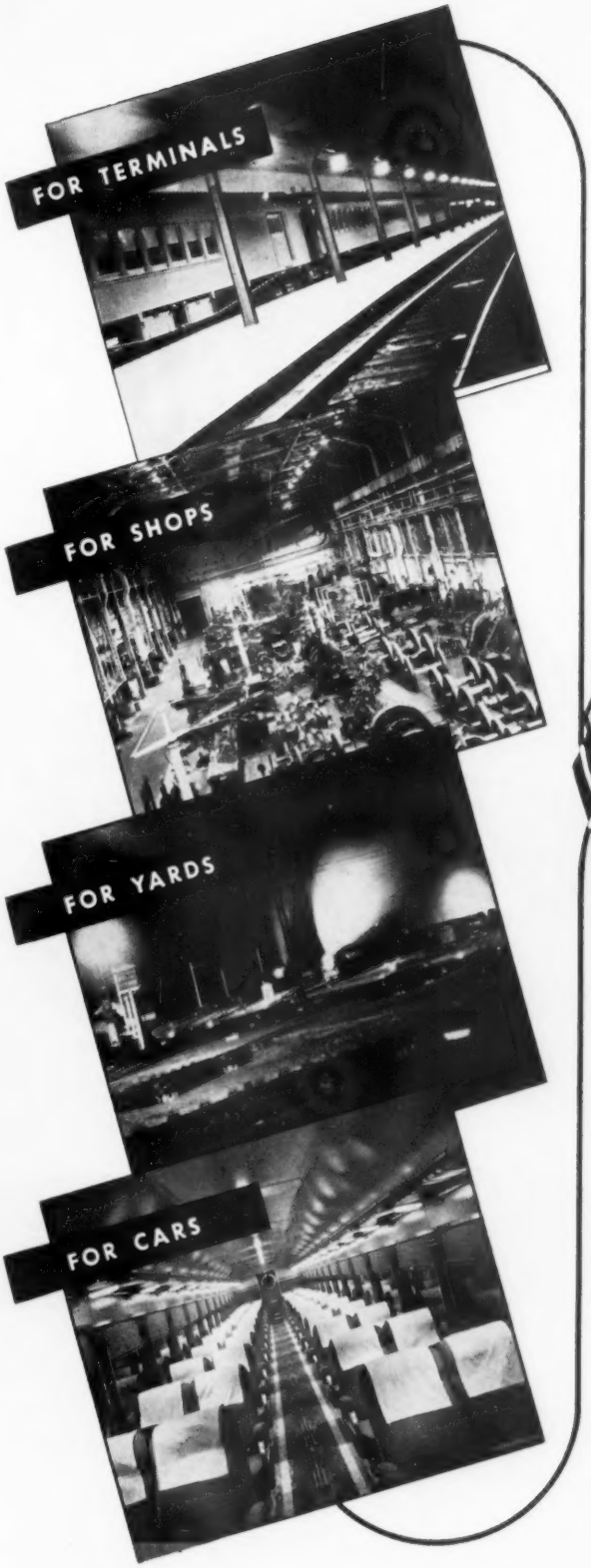
"Caterpillar" Diesels power more than 90% of the 44-tonners in the Western Hemisphere, and the above is typical of the reports that have come in from among the 53 roads which operate them.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR REG. U.S. PAT. OFF. **DIESEL ENGINES**

TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

The discharged veteran wears this emblem. Remember his service and honor him.



ALL THE LAMPS IT TAKES

TO LIGHT A RAILROAD!

YOU simplify your problems of lamp supply when you follow the practice of leading railroads in *getting them together* via Graybar. As you well know, railroad lamp requirements are highly specialized. There are specific types of lamps for headlights, trains, rough service, signals, high-bay shop lighting, yards, and terminals.

Graybar offers special stocks at conveniently located offices and warehouses. A corps of men who know railroad lighting needs is ready to serve you.

What's more, Graybar all-inclusive service on lamps is but part of a broad-gaged lighting service, including a full line of fixtures and the aid of lighting specialists in their selection and use.

The chances are that Graybar is already meeting some of your electrical requirements. Save time and trouble by making Graybar your lamp headquarters.

Executive Offices:
GRAYBAR BUILDING
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IN OVER 80 PRINCIPAL CITIES

GraybaR Everything Electrical GraybaR ELECTRIC COMPANY

TIME-TESTED

for Endurance
During Years of
Service ..

COMMONWEALTH LOCOMOTIVE BEDS

During years and years of use in all types of heavy-duty service, **COMMONWEALTH CAST STEEL LOCOMOTIVE BEDS** have stood the tests of time. Among the reasons for their remarkable performance record of keeping locomotives in action are the following:

- They are engineered for each type of locomotive.
- Designed for strength where it is most needed.
- Simplified—one-piece design reduces maintenance work.
- Greater strength with less weight.

The permanent durability of **COMMONWEALTH ONE-PIECE DEVICES** assures greater safety in high-speed train operation, and the inherent strength greatly adds to life and efficiency of equipment with substantially reduced maintenance costs.

GENERAL STEEL CASTINGS

EDDYSTONE, PA. GRANITE CITY, ILL.

"RELOCATION PROJECT"

that has paid all along the line!

In hundreds of railroad offices the daily work of executives and staffs is getting done faster, with less effort, because Remington Rand Vertical Filing Systems make papers easier to locate and *relocate* with accuracy and speed.

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FULL DETAILS are in "Railroad Management Controller No. 703," and "The Office Manual of Better Filing Supplies". Both are available on request.

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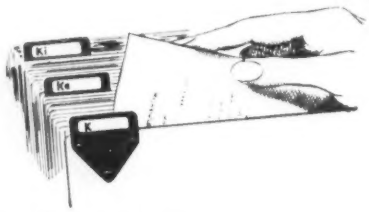
for all Railroad Departments



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SYSTEMS DIVISION

REMINGTON RAND

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HARDENED RAIL ENDS

Reduce Track Maintenance

● Flame-hardened rail ends resist batter, greatly prolonging the service life of rail in first position. The possibility of secondary batter is eliminated since rail ends hardened by Oxweld's method wear at about the same rate as the rest of the rail.

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Ask an Oxweld representative for more information about end hardening and other oxy-acetylene maintenance procedures.

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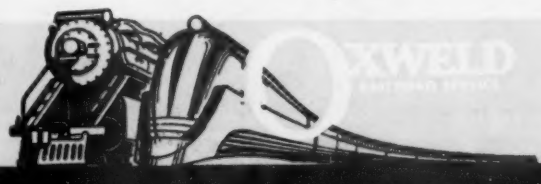

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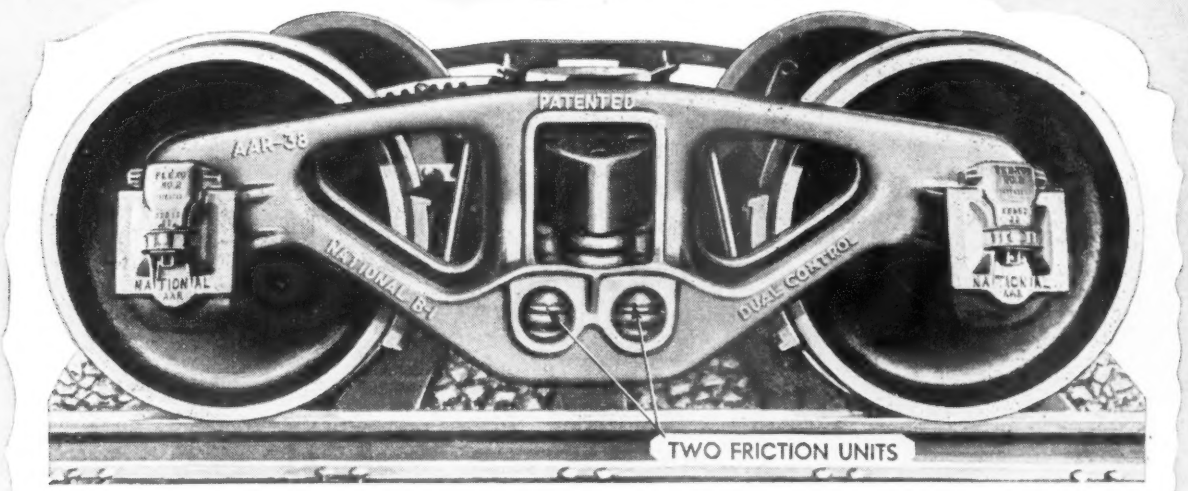

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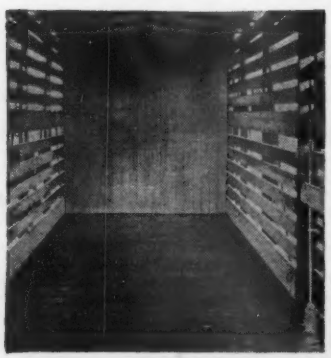

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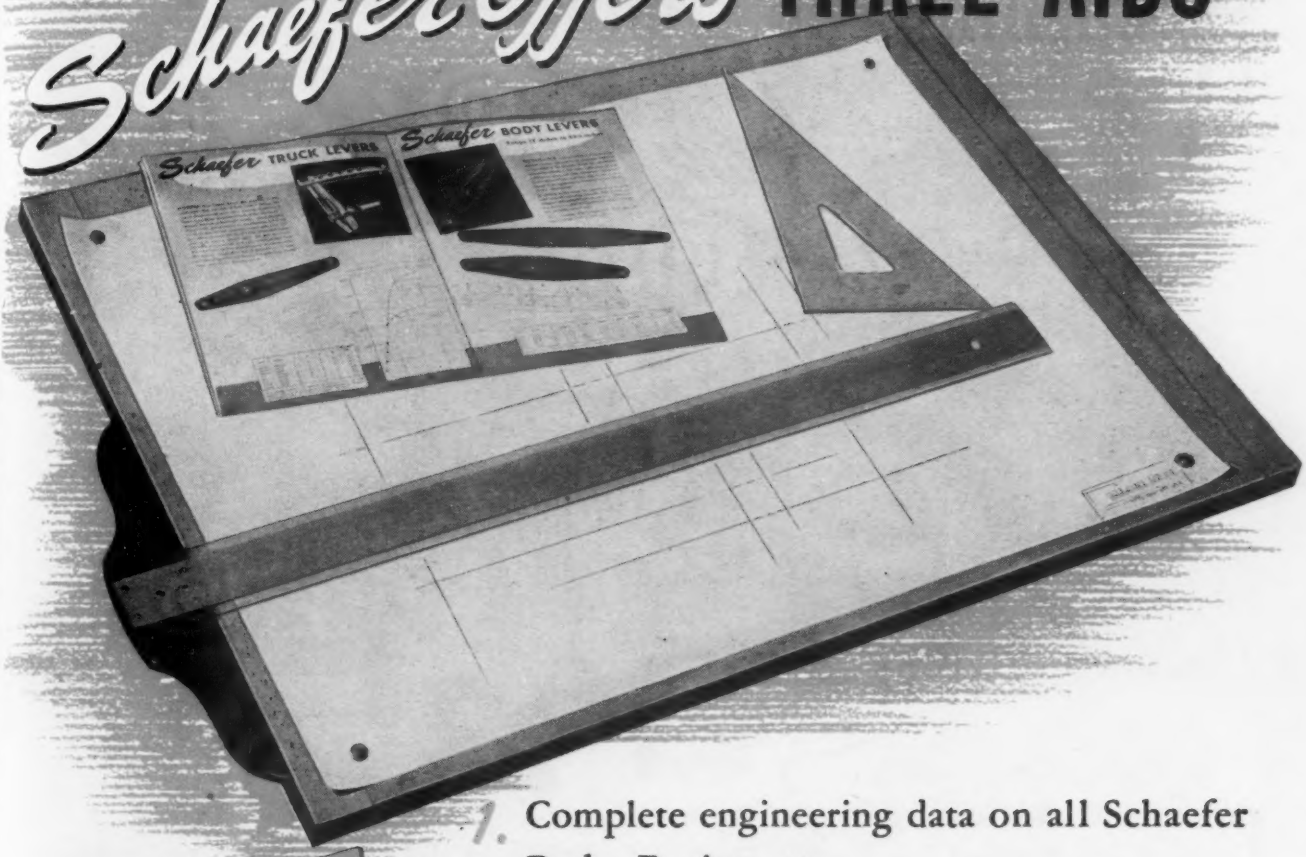

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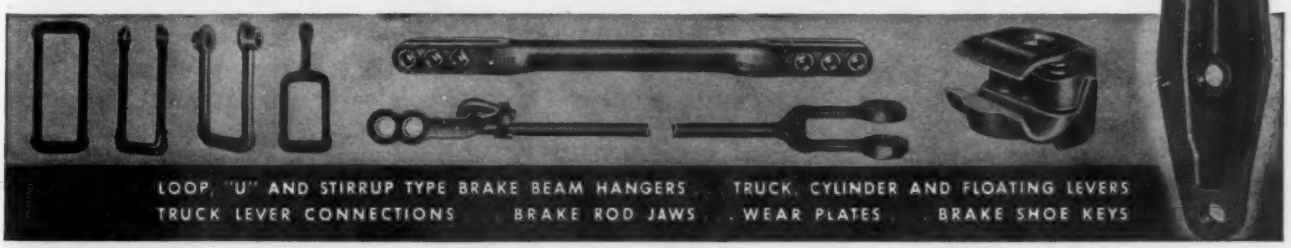
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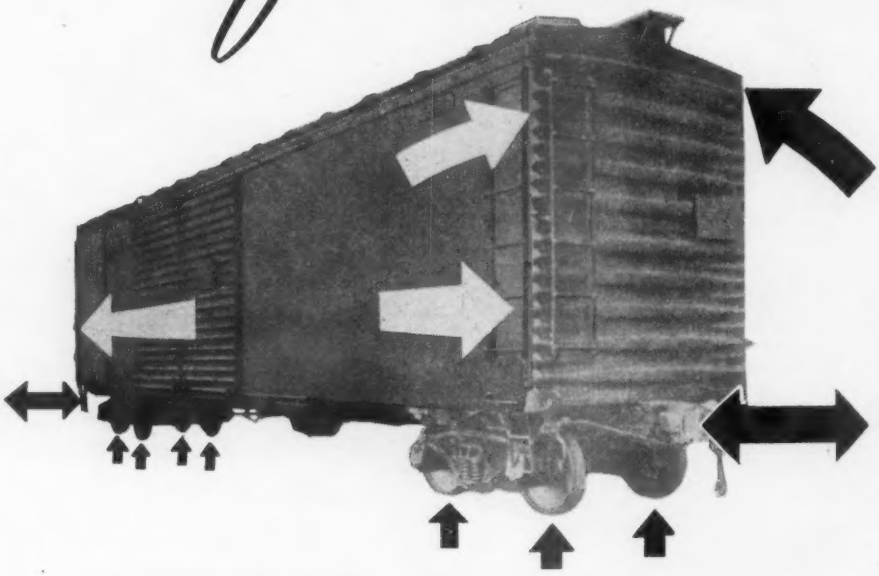

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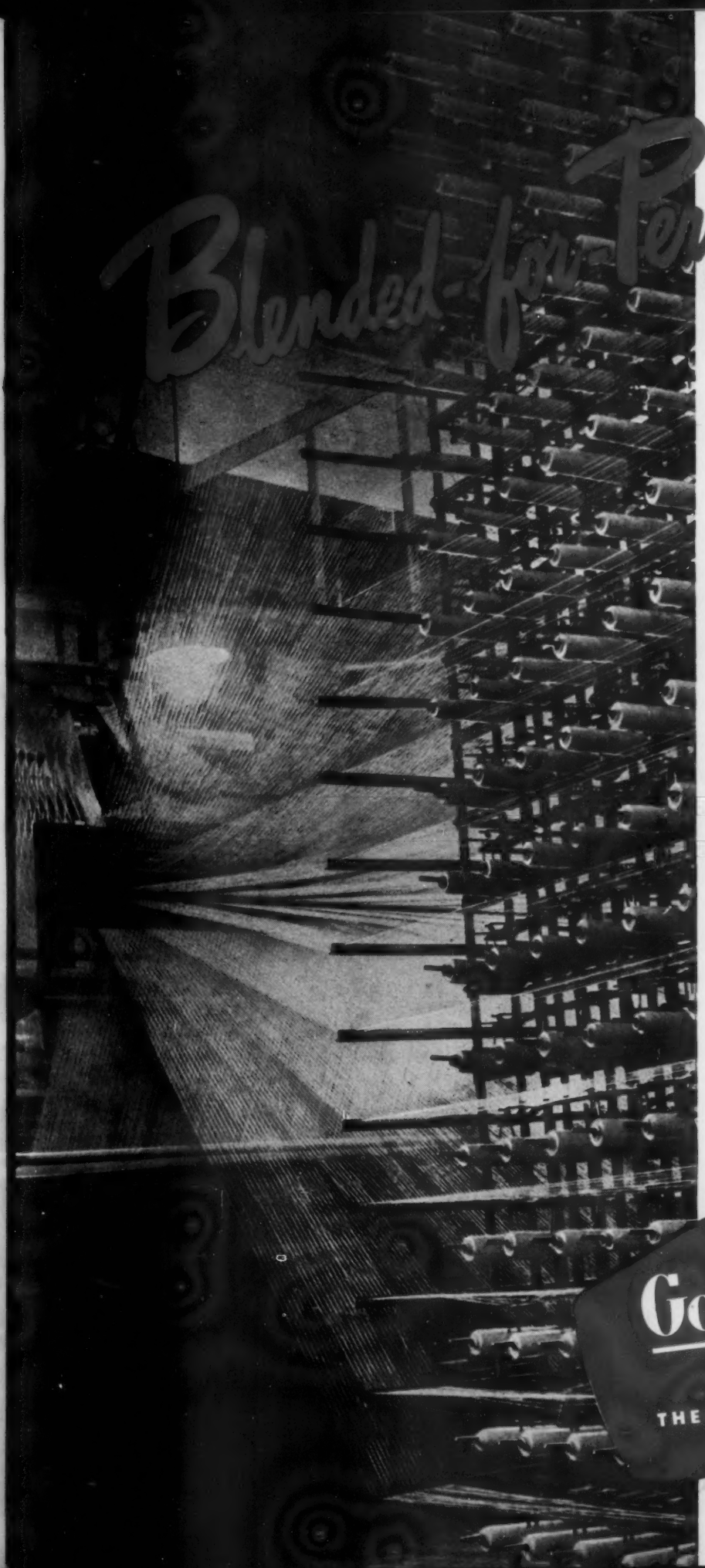

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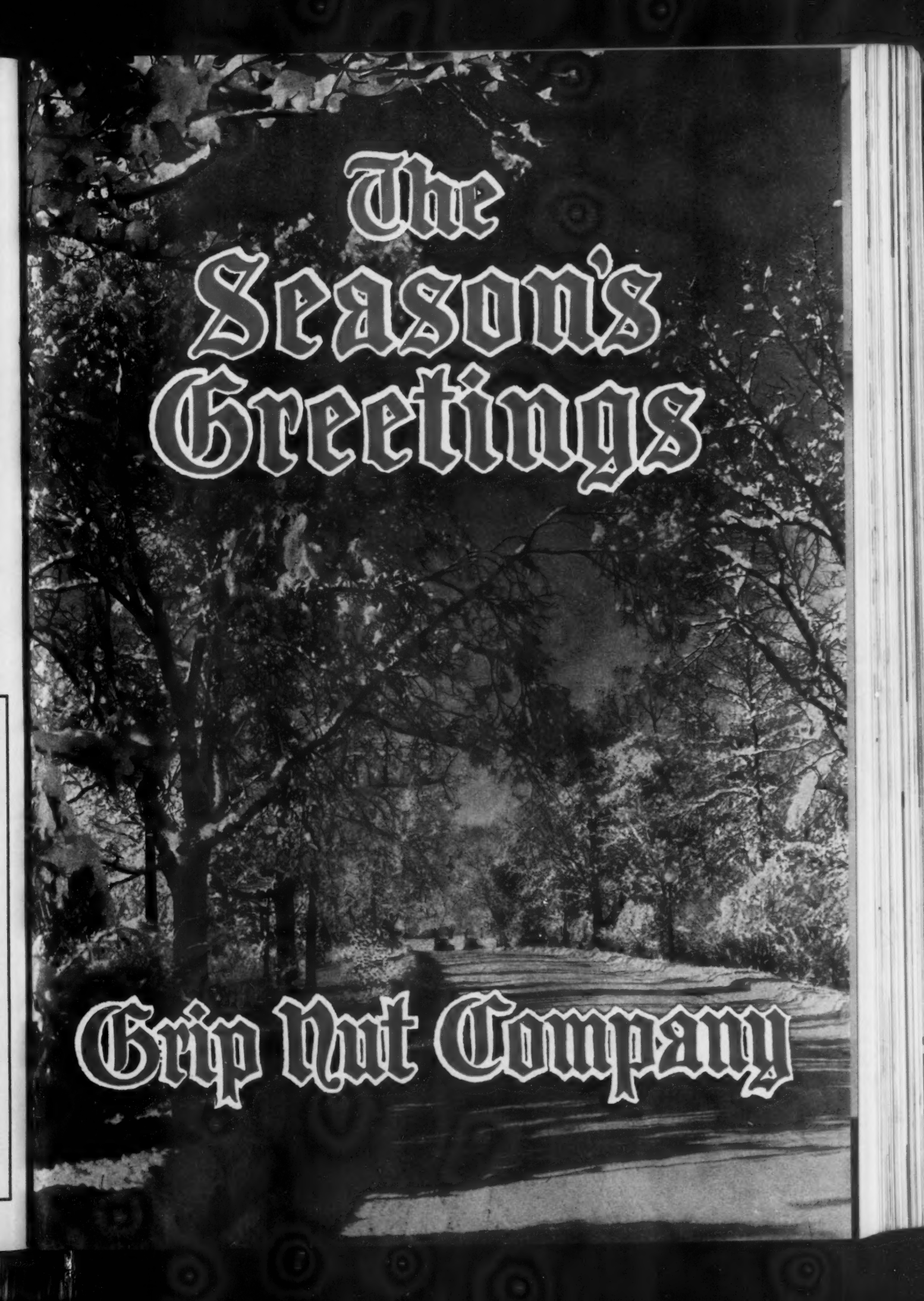
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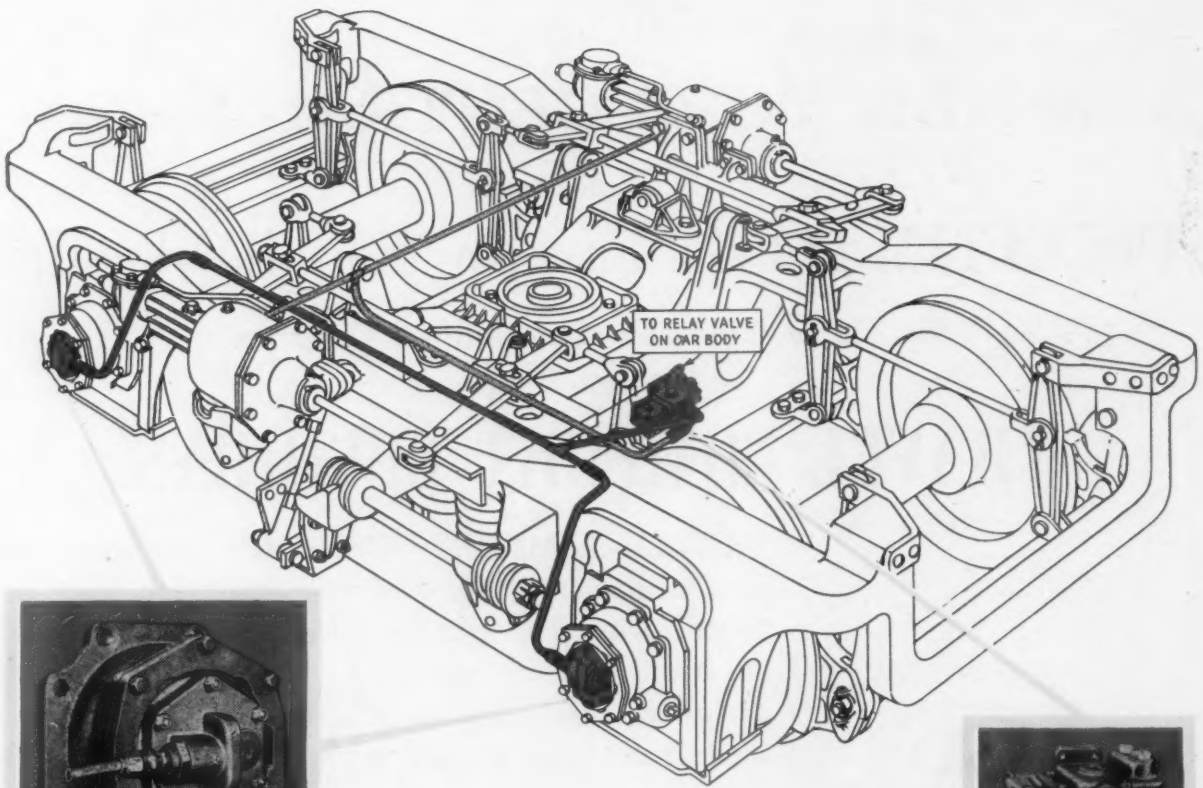

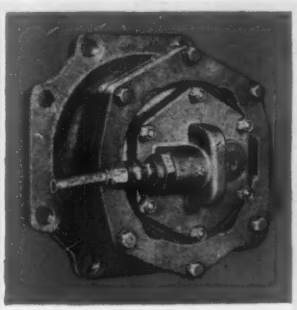

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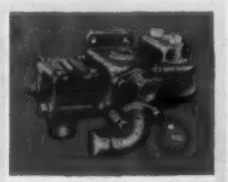

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Railway Age

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Vol. 119 December 8, 1945 No. 23

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In This Issue

Page

Moving Record War Traffic in Winter **928**

How the Canadian Pacific, in February and March of this year, battled with severe snow and ice conditions and emerged with more freight than ever before in history.

Modern Power Saves Train Miles **936**

With Cotton Belt traffic density at all-time peak, this road by using modern Diesel and steam locomotives, was enabled to reduce number of trains operated — Important changes of assignment in motive power are revealed herein.

Burning Coal in Locomotives **941**

A. A. Raymond discusses factors bearing on performance of steam locomotives, including optimum size of fuel for efficient combustion.

EDITORIALS

Stalemate in Labor Relations 925
Coal Becomes Aggressive 926
Highway Users' Group Renounces the "Price System" 926
"... et Huit Chevaux" 927
Keeping Up with the Times 927

GENERAL ARTICLES

Moving Record War Traffic in Winter 928
Lea Warns N. I. T. League on Nationalization 933
4 Bidding Groups File Pullman Briefs 934
Modern Power Saves Train Miles 936
Burning Coal in Locomotives, by A. A. Raymond 941

GENERAL NEWS **944**

WITH THE GOVERNMENT AGENCIES **949**

REVENUES AND EXPENSES OF RAILWAYS **962**

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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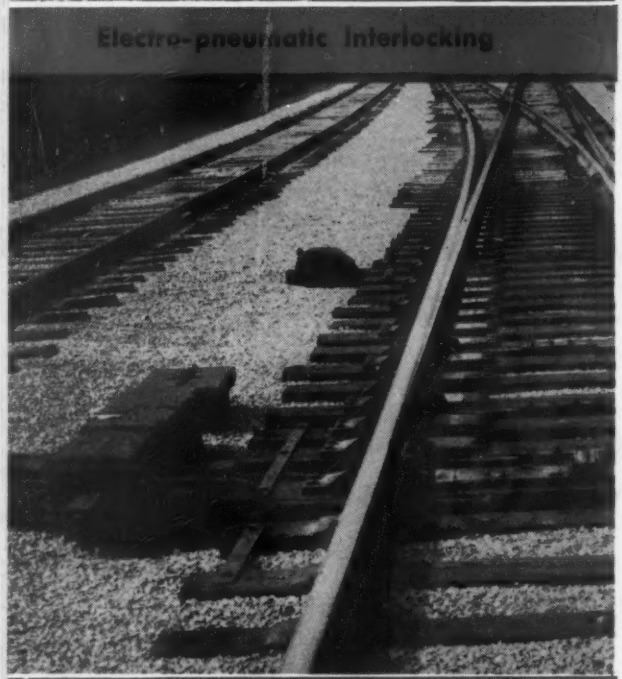
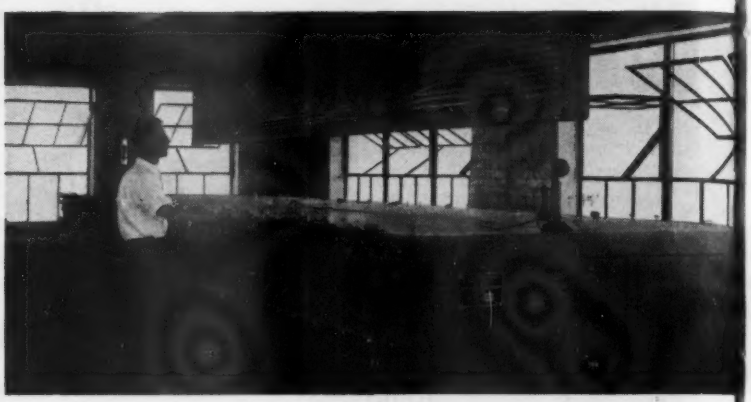
THE KEY TO EVERY INTERLOCKING PROBLEM

Electro-pneumatic Interlocking

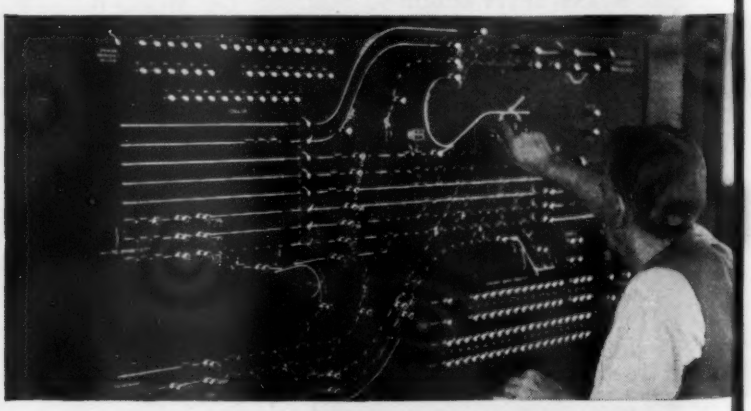


Electric Interlocking



Model 14 Interlocking Machine

Unit-lever Relay Interlocking Machine



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The Week at a Glance

TRAVEL TOUGHEST YET: The passenger situation is worse now than it has ever been—such was John J. Pelley's frank admission in a statement to the press in Chicago last week. It is the inbound troop movement from the Pacific that is causing all the trouble. Extremely heavy arrivals, combined with strikes at plants producing fittings for new Army troop kitchen and sleeping cars, are delaying troops beyond schedule at arrival ports. The A. A. R. chief takes what Britons designate as a dim view of the prospects for civilian travel during the approaching holiday season.

●

PULLMAN DISPOSITION: Pullman, the vendor, by request, of the sleeping car business, and the four rival prospective purchasers of the enterprise, have presented their briefs to the three-judge Philadelphia court, each outlining what it proposes to do, with reasons for its belief that its projected course parallels the public interest while the intentions of its rivals do not. The briefs are reviewed in an article in these pages. On December 10 the court will hear oral argument.

●

CLASS RATE SUIT FILED: Nine eastern states led by New York have filed suit in the federal court at Utica, N. Y., to enjoin the I. C. C.'s order looking toward uniform freight classification and class rates in the area east of the Rockies. The petition is reviewed in our news pages. December 13 has been set as the date for hearing, which will take place before a three-judge court.

●

STUDY PROPOSALS: Senator McFarland's resolution that the Senate Interstate Commerce Committee conduct an inquiry into transportation policy, such as that already being carried on in the House under the aegis of Chairman Lea of the House Interstate Commerce Committee, was delayed in the Senate this week when Senator Brewster raised the question of overlapping committee jurisdiction. The House has not yet given its official blessing to the Lea investigation and the jurisdictional issue is understood to be the occasion for the delay there, too.

●

INDUSTRIAL PEACE FORMULA: It is a curious phenomenon how the belief has caught on among almost everybody unfamiliar with the facts that the Railway Labor Act embraces a miraculous formula for the prevention of strikes and the promotion of industrial peace. Even President Truman, who knows more about the measure's actual operations than most laymen, has now put forward the "emergency board" and "cooling-off-period" devices as his solution to the labor relations turmoil in industry. Actually, as all railroad men know, the "fact-finding" board reports have had little effect in preventing walk-outs on the railroads, since the time four years ago when President Roosevelt refused to put the "moral" force of his office behind a fact-finding board report, and, instead, directed the board as mediators to seek to induce the railroads to concede larger pay increases than the same board, sitting as a tribunal, had found to be justified. From that time on "fact-finding" has had more defiance than acquiescence from union litigants. The factor which has made for peace on the railroads has been the carriers' willingness, so far, to make concessions in excess of those found by "fact-finders" to be reasonable.

●

CAUSE OF UNREST: The principal source of today's chaotic industrial relations is the practically unanimous insistence by labor leaders that employers accept the maverick "purchasing power" theory of wages; and the equally adamant stand against this exotic doctrine by all management which knows from experience what conditions are needed to make industry function with vigor. An editorial in this issue likens the present situation of unions and management to two business partners, one of whom unfortunately insists that 2 plus 2 equals 10. It will be difficult if not impossible for these partners to conduct their business to their joint profit, and avoid mutually harmful conflict, unless they can get together on a uniform brand of arithmetic. If management's economic arithmetic is the kind which actually reflects the facts, then it follows that the greatest contribution management could make to industrial peace would be the promotion of a wider understanding and acceptance of its method of reckoning.

●

HOW C. P. R. FIGHTS SNOW: Unusually severe weather early in the present year brought conditions on U. S. railroads in the Northeast which will be long remembered—and which would have been worse had it not been for the friendly assistance of our good Dominion neighbors. With old Boreas beginning to toot again, a timely article in this issue tells how one of these good Samaritans, the C. P. R., happened to be able to be so helpful last year. Fundamentally, it is experience to which the credit is due—C. P. R.'s winters are not those of Bermuda; the road has learned how to maintain normal operations under conditions which would tie most American lines up worse than a fleet of Presidential specials. Our article reveals how ample (and carefully chosen) equipment plus adequate planning can keep railroads going during the worst antics that Old Man Winter can kick up.

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WAR-MONGERS: "Free enterprise and the market economy mean war; socialism and planned economy mean peace"—such was the dictum laid down by the visiting left-wing British pundit, Harold Laski, in a New York speech on December 3. Doubtless he had in mind those notable protagonists of free enterprise and market economy, Germany and Russia, which started the European war by invading Poland; and the equally eminent champion of economic freedom, Japan, which precipitated the conflict in the Pacific by its *laissez-faire* activities at Pearl Harbor.

ECONOMIZING TRAIN-MILES: In 1940 the bulk of the Cotton Belt's main line freight traffic was handled by 15 modern 4-8-4's and 10 Mountain-type locomotives. Early in 1941 the management foresaw something big coming their way and set about getting the power to move it. Events did not disappoint the anticipation, since net daily ton-miles per mile of line rose from less than 3,500 in 1940 to more than 11,000 in the spring of 1945. Additional modern power acquired to move this increasing load consisted of seven 4-8-2's and five 4-8-4's (1941), three Diesel-electric freight locomotives (1944), and 23 Diesel switchers (1941-45). Some available obsolescent locomotives were also acquired, where temporary conditions justified the expedient. With modern locomotives predominant in through traffic, the road was able to maximize its ton-miles by a frugal outlay of train-miles, as is explained in an illustrated article in these pages.

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STEAM LOCO PERFORMANCE: Some of the factors effecting the efficiency of coal-burning steam locomotives are discussed in a paper in this issue, by Fuel Superintendent Raymond of the New York Central—among them the most advantageous fuel sizes. An editorial draws attention to the intensive research now going on to develop a coal-burning locomotive which will provide a more favorable comparison to some of the Diesel's advantages than as yet is ordinarily found in coal-burning steam power.

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J. MONROE STILL BUSY: O. D. T. Director Johnson told the utility commissioners, meeting in Miami this week, that there is still too much O. D. T. work left to do to allow him to resume full time I. C. C. duties on January 1, as he had hoped to do. Also for this reason, he will have to forego the I. C. C. chairmanship, which otherwise would come to him by rotation next year.

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COAST-TO-COAST TRAINS: Senator Wheeler has had printed in the Congressional Record the admonitory editorial from the New York Herald-Tribune (reprinted in last week's *Railway Age,* page 915) calling on the railroads to establish coast-to-coast passenger train service, without the necessity for long lay-overs at Chicago, St. Louis and other Mississippi river gateways. The Senator was particularly critical of the simultaneous late-evening leaving time of trains for the Northwest from Chicago, when most important trains from the Eastern seaboard arrive in Chicago in the morning. The railroads which are seeking to purchase the sleeping car business reveal in their brief to the Philadelphia court that they are working on the problem of coast-to-coast service, and expect to reach a solution. The Mississippi gateway cities are not looked upon as unpleasant places for a voluntary sojourn, but few people appreciate lingering even in some earthly Valhalla when they are in a hurry to get somewhere else.

IT'S A GREAT NEW DAY FOR RAILROADING

BEYOND THE LIMITS OF A GAUGE

It takes more than skilful machining
to put long, dependable service
into replacements for so fine a mechanism
as General Motors Diesel locomotive.

It takes the years of research,
laboratory testing, and actual experience
on the road that GM has had.

That's why it pays well to use only
genuine Electro-Motive parts
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And to make full use of the EMD Service policy:

- **The right part**
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GENERAL MOTORS
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ELECTRO-MOTIVE DIVISION
GENERAL MOTORS CORPORATION • LA GRANGE, ILL.

Stalemate in Labor Relations

In a long public statement issued on November 24 the United Automobile Workers, the union which is conducting a strike against the General Motors Corporation, made the following flat declaration:

"America's post-war problem is not production; it is the maintenance of purchasing power so that the American people can buy back the abundance they can produce."

It would be difficult to find an economist of recognized professional stature, who is known primarily as an economist rather than as a politician or bureaucrat, who supports this opinion. There are some "political economists," with the accent on the adjective, and many "economic writers" (such, for example, as Stuart Chase, e. g., in a letter quoted in *Railway Age,* November 17, page 834) who support it, however. They are people who bear a relationship to the main current of economic doctrine comparable to that occupied in medical science by Dr. Hay of diet fame, by the late Aimee Semple McPherson to theology, and by H. G. Wells to history.

It goes without saying that the labor leaders have seized upon this preaching from what may be called the P. T. Barnum or name-band school of economics, not out of sudden respect for economic science, but because this one isolated dictum happens to support their predilections. If they had decided to orient their behavior generally to conform to the teachings of economics—even of the "purchasing power" variety—they would have given evidence, as they have not, of interest in other economic doctrines less obviously self-serving than this one. As it is, the unionists' economics is highly eclectic; they do not accept the whole of the teaching, even of such "purchasing power" economists as Stuart Chase. In his recent "Democracy under Pressure," Mr. Chase spoke his mind about the "monopolistic trend" of the labor movement, which aroused no acclaim at all in union circles that look upon him as an oracle in the limited sphere of wage theory.

There can be no hope of attaining rational and harmonious relationships between industrial management and organized labor so long as one of the parties to the negotiations insists that no concern is needed over production; and that general prosperity will be generated if "purchasing power" (i. e., paper money) is generously spread among unionized employees. Adherents of this theory contend that goods to match the money will be miraculously forthcoming, regardless of whether there is a prospective profit in producing such goods or not. Since the leaders of industry obviously do not subscribe to this "purchasing power" doctrine, they owe a duty to the public and their employees—as well as to themselves—to do what they can to explain what is wrong with it.

A business partnership is in a hazardous position if one of the partners acts constantly in the belief that 2 plus 2 equals 10. The partners in industry are (1) those who invest their capital and (2) those who invest their labor in it. It is necessary (1) for *total* production of goods and services constantly to increase in order to support increased population, and (2) for production *per capita* constantly to increase in order to increase real income per capita and raise standards of living. But neither increase of total production nor of production per capita can be achieved without increasing investment in the productive and transportation plant of industry. And the profits of industry are directly and indirectly the source of almost all the capital invested in industry. Therefore, the needed increase in investment can and will be made only if the current and prospective profits of industry afford adequate opportunity and incentive to increase the total

capital available and to lead to its investment.

The labor partner in industry is contending that 2 plus 2 equals 10 when he ignores the essential role played by profits and capital in production, and demands advances in pay regardless of the effect on profits. Partners in business can neither deal rationally with their customers nor with each other until they attain accord upon a uniform brand of arithmetic. The management and labor partners in industry are in exactly that fix today, from their failure to agree on the means necessary to maximize national wealth and income and to insure high level employment.

Coal Becomes Aggressive

News of numerous projects for the development of new locomotive types which have been undertaken during recent months, most of them various coal-burning types, has clearly indicated the aroused state of mind of the bituminous coal-mining industry and of those railroads originating large tonnages of bituminous coal. The same aroused state of mind was also evident during those sessions of the annual meeting of the American Society of Mechanical Engineers last week in which railway fuel and motive power were under discussion. There is a disposition toward the recognition of the advantages demonstrated by the Diesel-electric locomotive and of present disadvantages of the steam locomotive, particularly on the score of dirt (smoke and cinders) and on the requirements for servicing en route on long locomotive runs.

Various approaches to improvement of the competitive disadvantages of coal as a locomotive fuel are being pushed forward aggressively. These apply first to locomotives with conventional boilers burning fuel on grates, and comprise revisions of servicing facilities whereby the time for taking on coal and water and dumping ashpans is being greatly reduced. Furthermore, the reduction of terminal time for turning and servicing has also been tackled energetically. It will be admitted by all who saw the Norfolk & Western colored motion picture showing the operation of one of its latest streamline passenger locomotives, which was serviced and turned in little more than an hour after a round trip of 800 miles, that at least some steam locomotives are much more reliable than any of them were credited with being a few years ago.

But the problem of dirt elimination from the conventional steam locomotive has not yet been solved. The probability that black smoke can be practically eliminated has been greatly increased. It is the cinder problem for which a complete solution under the prevailing high rates of combustion is not yet in sight.

A fresh approach to the use of coal as locomotive fuel is presented by the pulverized-coal-burning gas-turbine locomotive, the development of which is being pushed forward rapidly by Bituminous Coal Research, Inc., for the cooperating group of bituminous coal mines and heavy bituminous-coal-handling railroads. Whatever the outcome of the competition among the gas-turbine, the projects involving the use of the steam turbine, continued refinement of the conventional steam locomotive, and the Diesel-electric locomotive, the situation promises to end in great benefit to future railroad operation.

Highway Users Group Renounces the "Price System"

The propaganda and lobbying organization known as the National Highway Users Conference has issued an attractively printed and economically disingenuous 16-page pamphlet entitled "Ahead with Highway Transportation" in which it sets forth its "policies."

In brief, it wants more and better highways at little or no further expense to highway users. It insists that highway users should pay only "their share" of highway costs, the implication being that somebody else, also, should share in such costs. It is as if a man buying a suit of clothes or a house should look around for somebody to help defray the expense. Nobody but highway users uses the highways, so what possible justice or sense is there in anybody besides highway users paying for them?

Specifically, this suave propaganda group wants a long-range highway development program in every state geared to users' "needs" and limited, not by users' contributions, but by the "taxpayers' ability to pay." It believes that "the benefits" of highway transportation "obligate the federal government to contribute to the cost of highways from sources of general taxation." Without this declaration one might have thought that federal taxpayers had about all they could or should manage in defraying the costs of the war, without digging further to pay other people's transportation expenses—but the swarm of hand-out lobbyists in Washington, of course, thinks differently.

Inspired no doubt by motives of the loftiest selflessness—the urge which stirs the Highway Users Conference, we are informed, is the "preservation of the principles for which this country paid a high price in lives, property and money"—such patriots resolutely plunge one hand more deeply than ever into the public till, while with the other they vigorously wave Old Glory and the banner of free enterprise.

What the Highway Users Conference's policies amount to, actually, is a repudiation of the "price system"—the traditional method by which production and consumption are channeled by prices reflecting total costs into courses of maximum public benefit, without occasion for bureaucratic intervention. The Conference demands that highway service be priced at less than cost (1) by having a part of the cost paid from general taxes; (2) by insisting that no automotive taxes be "diverted" (equivalent to a demand that highway plant pay no property taxes as other industry must do); and (3) by further diminishing highway users' contributions to costs of their service by permitting a truck to traverse all 48 states while paying license fees in only one of them.

F. A. Hayek (author of "The Road to Serfdom"), writing in the current issue of the American Economic Review, calls the price system "a mechanism for communicating information." The alternative to control of the economy by the price system is its control by bureaucratic "economic planning," principal avowed exponents of which are New Dealers, socialists, and technocrats. The Highway Users Conference has adopted an ideology which puts into mighty queer company the manufacturers and business men, all professing opposition to socialistic policies, who compose it.

". . . . et Huit Chevaux"

A group of veterans returning from the Pacific after months of service wrote bitter letters to Chicago newspapers complaining that they were herded into day coaches for the trip from San Francisco to Chicago, and that their train was several hours late. Those of us who remember the interminable journeys across France in the 40-and-8 box cars, would be inclined to think that the character of American youth had deteriorated except that the GI's have proved differently on the various battlefields.

It was unfortunate that these boys had poor accommodations, but investigation would have disclosed that the railways were not to blame. Rightly or wrongly, the American people are demanding the immediate return of their sons, husbands and brothers, and to a large extent the War Department is acceding to this demand. This particular group of men was not only dumped upon the railroad without warning but also at the exact time when the Third Fleet was moving from the Pacific Coast to the East in nearly 700 Pullman cars.

In three days nearly 20,000 sailors were so transported, 11,000 in one 24-hour period. This mass movement of sailors drained the western lines of Pullman equipment.

Meantime, the western railroads were handling the greatest passenger traffic in their history. The Union Pacific was not involved in the movement of which the soldiers complained, but statistics as to this line will serve as indicative of the problems of all the western lines. The Union Pacific recently completed a movement of 790,000 passengers in a month, the biggest month in its history of 76 years of operation. Transporting 24,000 passengers a day over the Union Pacific would have been termed an impossibility only a few years ago, yet it is being done, not merely on one day, but for weeks and months on end. The roads involved in the movement that has been given such adverse publicity show comparable figures.

The railways are entirely sympathetic to getting the boys home as fast and with the greatest comfort possible. When they are given advance warning, as was the case regarding the movement of the Third Fleet mentioned above, they perform what seem to be impossible tasks of mass passenger transportation. When, during the course of handling a difficult operation such as this, more troops are dumped upon them without warning, it is not surprising that these troops should have to be handled in coaches; the astonishing thing is that it was possible to move them at all.

Keeping Up with the Times

Nobody can escape the necessity for modifying his habits of thought to conform to changes in the circumstances governing the conduct of his work; and in no branch of railroading do changes calling for a high degree of adaptability occur with greater frequency than in the engineering and maintenance departments. The officers in these departments must constantly be on their guard to be sure that their attitude toward their responsibilities is in harmony at any given time with the circumstances then prevailing.

For instance, because of the extreme scarcity of funds for maintenance during the business depression of the 'Thirties, there was a tendency to develop what came to be known in later years as the "depression complex" —a state of mind characterized by failure to recognize that conditions had changed for the better. During World War II circumstances changed again; but this time there is ample evidence that the maintenance and engineering departments, motivated by urgency, adapted themselves with alacrity to the new conditions. The problem then was to do what had to be done—keep the structures in a condition adequate to carry the load imposed on them—by any means available, and almost without regard to cost. It was like a game in which certain of the rules of conduct, previously rigidly enforced, were suddenly suspended, leaving the players free to reach the goal in any manner possible.

These war-time circumstances were in strong contrast to the need for stringent economy which had limited the actions of maintenance men for so many years; and the change was rather pleasant, even though it was tempered by shortages of men and materials and all the other unfavorable factors inherent in war-time conditions. War-time departure from past practice arose, however, from artificial circumstances that were certain to disappear, necessitating a return to the practice of economy in expending funds for maintenance. Human nature being what it is, it would be surprising if this "reconversion" in habits of thought should occur everywhere automatically and without resistance. In other words, it could be expected that a "philosophy of plenty" would develop which would have to be overcome before it could be said that the maintenance departments' house was in order.

This condition is an important practical problem, attention to which has been called in public utterances by a number of top-ranking engineering and maintenance officers. H. R. Clarke, chief engineer of the Burlington Lines, speaking before the Roadmasters' and Maintenance of Way Association recently, stated that "we must get back to sound principles and economic thinking," and that "we will have to readjust our mental outlook and perhaps reorient our thinking." In an address before the Maintenance of Way Club of Chicago, on November 26, C. H. Mottier, vice-president and chief engineer, Illinois Central System, explained the problem in these words: "The easy money of the past four years has . . . developed among some of us a philosophy of plenty which approaches a philosophy of extravagance. We will have to get down to earth and again teach and practice the philosophy of economy. Many of us in executive positions will have to change our views on the spending of money."

These warnings do not argue for the adoption of an extreme position toward the need for practicing economy in maintenance, since such a policy could weaken, and perhaps nullify, the efforts of the railroads to keep pace with demands upon them. What is called for, rather, is simply a shifting of emphasis to the necessity of achieving maximum efficiency in maintaining the properties to the higher standards required by future service, with the greatest economy consistent with thus maintaining them.

Moving Record War Traffic in Winter

A success story of how the Canadian Pacific, while fighting severe snow and ice conditions, handled more freight in February and March of the present year than ever before in its history

EARLY this year, while the Allies were determinedly moving up men and vast quantities of munitions and other supplies in preparation for a decisive battle which, it was hoped, would knock Germany out of the war, the northeastern part of North America, east of Chicago and north of the Ohio river, was deluged with snow, accompanied by high winds and low temperatures. These conditions continued for weeks and crippled production and transportation in the northeastern section of the United States at a time when it was imperative that war freight should get through. Do what the railways could, traffic was seriously impeded, particularly through the Buffalo gateway, and embargoes were placed over a large area of the United States to give preference to war and essential civilian traffic and to relieve temporarily the distressed railways until they could recover.

Traffic Records Broken

While this was going on, the Canadian Pacific was "plugging away," doing business as usual and, in fact, doing much more business than usual. In the latter part of January and through the greater part of February, when U. S. roads were having the most trouble, this railway, in addition to handling its own heavy traffic, assisted in the movement of perishables and other important freight to and from the New England states, diverted from U. S. lines. In fact, during the first three months of this year, the C. P. R. exceeded the theoretical capacity of its Eastern lines and, in February and March, moved a volume of traffic which was the greatest in the history of the road for these two months. The traffic handled during February and March, as compared with that for the corresponding months in the six preceding years, is shown in the table of unit number of revenue cars handled on the Eastern lines (counted once over each subdivision).

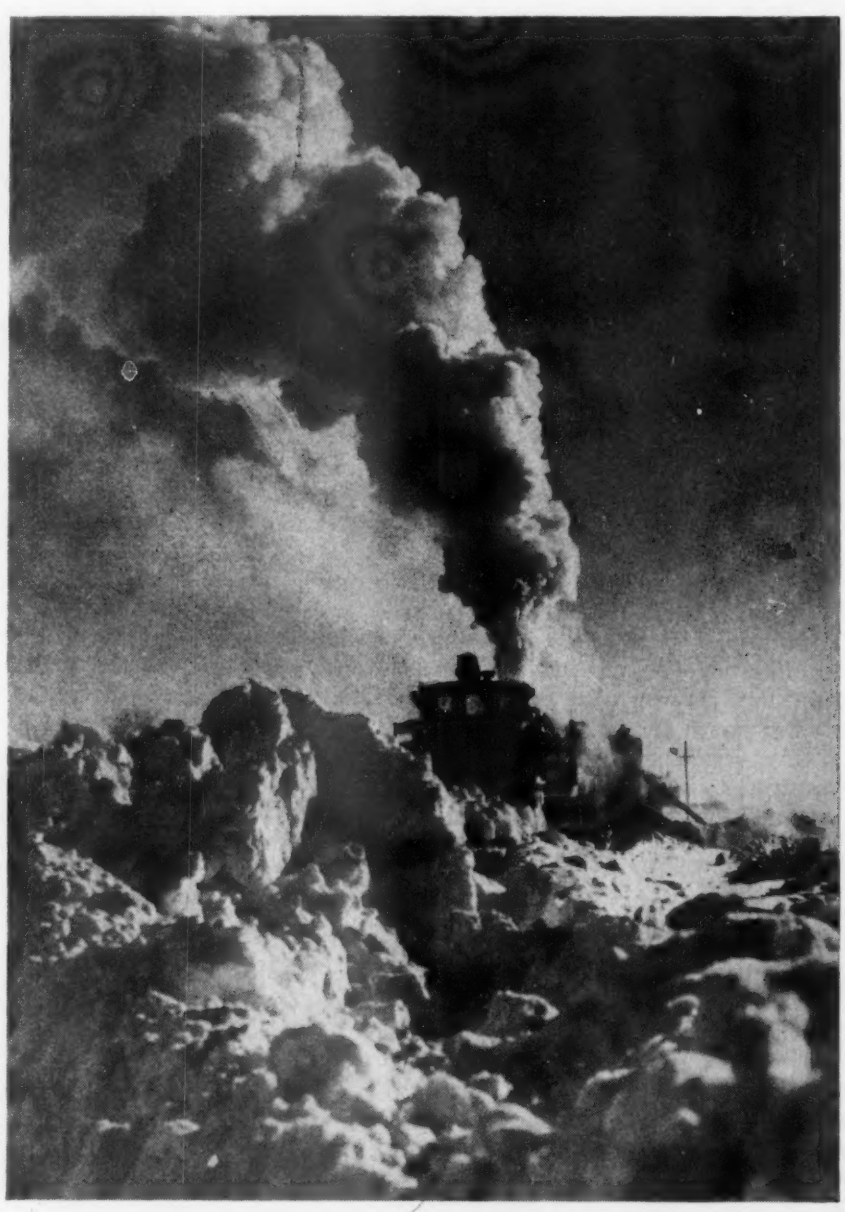
Unit Number of Revenue Cars Handled (Eastern Lines)

Year	January	February	March
1939	186,922	180,205	208,184
1940	237,366	232,431	241,924
1941	297,169	299,890	365,580
1942	342,395	322,776	391,106
1943	309,148	317,947	379,173
1944	384,196	355,649	405,940
1945	354,313	393,326	454,509

Tribute is due the officers and men of the Canadian Pacific for establishing such a record under the difficult winter conditions that prevailed, and at a time when the movement of traffic was of vital importance. On the other hand, a word of explanation is due with reference to the problems and corresponding record of the U. S. railroads.* As one prominent C. P. R. officer stated, it is doubtful if the railways in the 'States' would be justified in procuring and maintaining the large amount of equipment and special facilities necessary to combat the extreme winter conditions which occur every year on most of our lines, but the like of which may occur only once in 20 years on their lines."

The Canadian Pacific is accustomed to climatic conditions each winter that would cause serious difficulties on most American railroads. For instance, tem-

* As explained in articles in the *Railway Age* of February 3, page 266, and February 10, page 300, the U. S. railways in the Buffalo area were seriously crippled at first by a freak New Year's day thaw and quick freeze, accompanied by a blizzard, which froze all the cars in yards to the rails. Set back by that storm, it was an uphill battle from then on to recover from a succession of following blizzards.



Snow Plow and Spreader Working in Heavy Snow

peratures from 51 deg. to 60 deg. below zero are not uncommon on many of its most northerly lines. In addition, Montreal, Que., one of the big rail terminals of Canada, has a heavier average annual snowfall (120 in.) than any other railway terminal of comparable size in North America. Such circumstances, occurring every winter, have provided a background of experience far exceeding anything most United States railroads have known, and, for that reason, the problems encountered by the C. P. R. and the methods employed in coping with them should be of considerable interest.

The last winter (1944-45) was an unusual one in many respects, both in the United States and in Canada. The weather on the western plains of Canada was unusually mild until March, while the Eastern lines of the Canadian Pacific experienced a more severe winter than usual. Because of this, the story of how the Canadian Pacific established traffic records during the first three months of 1945 is limited to a description of the organization and methods used during that period on the Eastern lines of this road, which comprise 5,129 miles of the 17,028 total system mileage, and which include all lines east of Port Arthur, Ont.

Three Factors

Briefly, the success of the Canadian Pacific in maintaining its operations in winter is based fundamentally on three factors: extensive preparation, plenty of equipment, and methods of operation and snow fighting based on years of experience. Under the plans which it has set up, all preparations for winter operations must be complete by September 15 of each year, and everything must be kept in readiness for snow storms and severe low temperatures until May 1. The preparations made include having all snow-fighting equipment repaired, tested and ready for winter operation; having all snow fences in place; all air lines, steam lines and tools used for snow removal and disposal ready; and men lined up for such work as may be required.

Probably the most important factor is that of having plenty of equipment, which must be in first-class condition when winter starts. The Canadian Pacific, on its lines as a whole, has the following heavy units of on-track equipment for snow removal from main lines, branch lines and in terminals:

200 snowplows (including six rotaries, used principally in the Rocky Mountain area)
73 flangers
48 Jordan spreaders, equipped with ice cutters

In addition, other equipment used in the larger terminals of the Eastern lines includes:

1 Sicard snow-blower
2 Barber-Greene snow-loaders
6 Mercury-type trucks with revolving brooms
5 Bulldozers
25 Portable air compressors (to operate ice chippers)
25 Lidgerwood unloaders and plows
6 Heavy trucks with 16-ft. snowplow blades
25 Snow trucks (rented)
510 Hart ballast cars
10 Melting pits

Cleaning Up After the Main Line Has Been Opened. Note How Snow Has Been Pushed Away from the Track at the Left

This terminal equipment is supplemented by a large amount of contractors' equipment, which is hired or rented as needed. The foregoing tabulations of equipment alone, however, do not tell the complete story of snow-fighting equipment on the road, because nearly everything that operates on the railroad and nearly every facility connected with operation is designed to meet winter, as well as summer, conditions. For example, all rail joints are of a special design with the nuts on the outside to accommodate flanger attachments on snowplows; underground cables have been installed at a number of points where previous experience has shown that serious overhead line breaks might occur during sleet storms; the foundations of turntable circle rails are heated with steampipes to keep the rails free of snow; and steam snow-melting pits are installed in all important turntable pits and at several points in large yards. As another example, nearly every cut of any size is protected by two or three rows of snow fences, located some distance from the track.

To keep main lines clear, the C. P. R. relies principally on its snowplows, the use of which is based on a constant and careful check of its own and government weather forecasts. In temperatures down to 25 deg. below zero train operation does not present much of a problem, but in temperatures from 25 deg. to 60 deg. below zero, it is easy to freeze up a train unless proper precautions are taken. Under such conditions, operating and dispatching are important, and an elaborate system of snowplow and train operation has been developed, based on common-sense rules. As a result of the methods used, trains may be delayed, but main lines are never tied up more than a few hours, and trains are seldom stalled on the road. In addition, all important passing tracks are kept open.

During severe storms, freight trains are not called until there is a good possibility they can get through, and occasionally passenger trains are held for a few hours during the worst of a storm, after which each passenger train is preceded by a snowplow until all danger is past. During such blizzard weather, trains and snowplows are operated from station to station under absolute manual block, and roadside signals are not depended upon. Trains follow as closely behind the snowplows as the manual

block system will permit. Some trains are double-headed during storms.

Roadmasters are in direct charge of snow-fighting operations, as well as of all roadway maintenance conditions on their territories. During the winter each roadmaster keeps constantly in touch with the chief dispatcher, who receives periodic weather reports each day for the entire division. As soon as there is any indication of considerable snowfall, the roadmaster decides whether or not a snowplow will be necessary for clearing the main track, passing tracks, and other sidings. If a plow is necessary, he orders one through the dispatcher, who furnishes the necessary work train, which may also include a spreader. If a very severe storm develops the snowplows are operated only to clear the main line and the most important passing tracks. Then, following the storm, a general clean-up is made of the main line and other tracks, spreading the snow as far back from the track as possible.

Each snowplow train is in charge of a regular train crew, and a snowplow foreman, who operates the plow and who is called when the train is called. Each snowplow foreman has with him two assistants and such extra men as may be deemed necessary. Ordinarily, the snowplow train consists of the snowplow, a locomotive and tender, perhaps a spreader, a boarding car or two for the extra-gang men, and a caboose.

The proper use of snowplows is primarily one of correct judgment. In storms, the plows must be started as soon as needed, for an hour's delay might tie up a division for days. On the other hand, too prodigal use is a waste of both man-power and motive power. Snowplows are not operated on freight or passenger trains because it is not wise to hit drifts with an entire train. Furthermore, during extremely low temperatures, trains delayed by such work would become frozen, and drawbars might be pulled in getting them started again.

Specially-reinforced wedge-type snowplows of steel construction are used on the Canadian Pacific, most of which are single-track plows with wings, although some are right-hand plows for use in double-track territory. These plows are constructed so substantially that three locomotives can be put behind a single plow, and they can buck drifts up to about 15 ft. in height. In operating plows with a side wing, care and experience on the part of the engineer are necessary—otherwise the plow will be derailed.

Snowplow Mileage

Such operating practices require a lavish use of all available motive power, both for snow-fighting work and for regular train operation. However, because the Canadian Pacific is a transcontinental system, and because extremely severe weather seldom extends across the entire continent at any one time, it is possible to transfer surplus locomotives, snowplows, etc., from its Eastern to Western lines, or vice versa, and this is done, if necessary. Normally, the snowplows are assigned by districts, and the number of plows on each subdivision is governed by the needs of the moment.

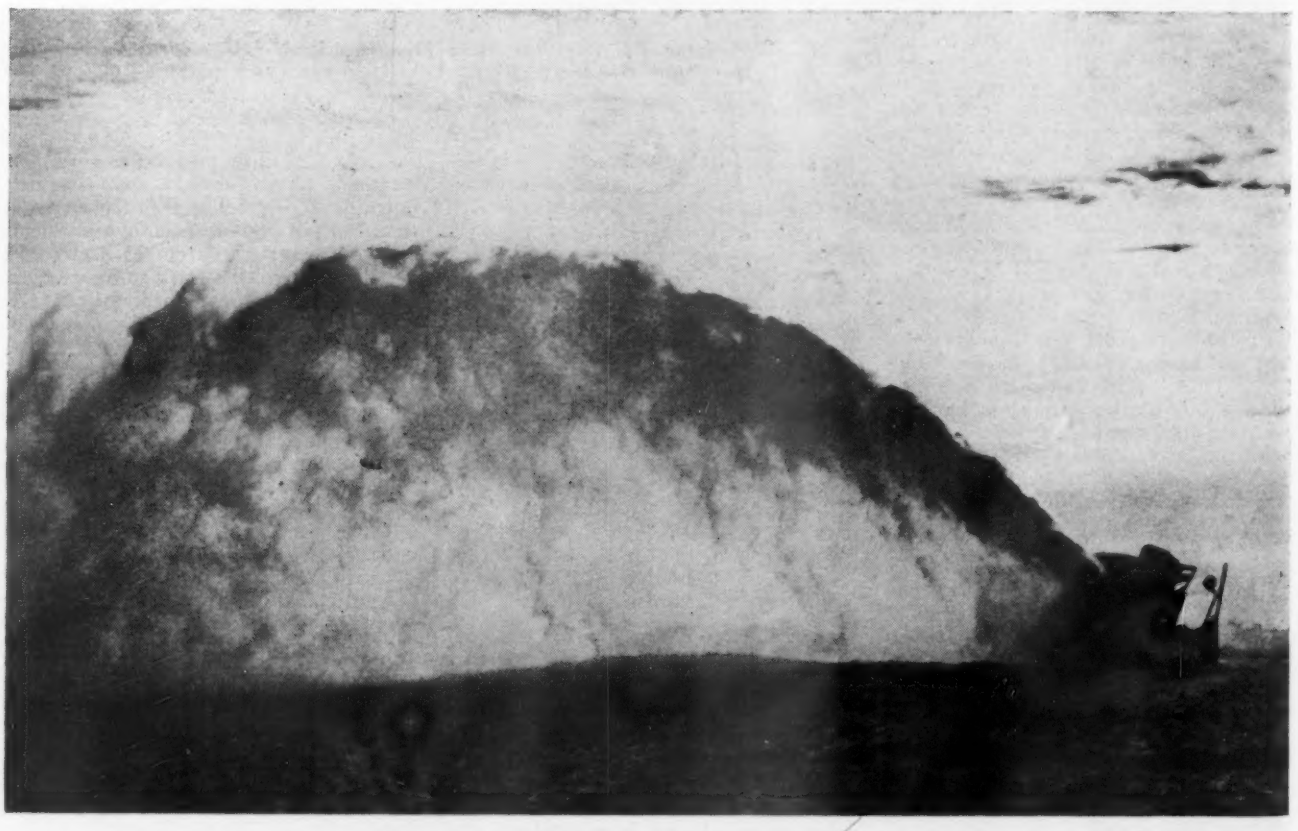
During a period of average heavy snowfall, each snowplow train will make about one trip a day. With 200 snowplows, therefore, a large amount of mileage is covered by their operation each winter. For example, the following snowplow road mileage was operated on the Eastern lines during December, January and February last winter:

December, 1944	46,950 miles
January, 1945	89,089 miles
February, 1945	65,517 miles

The maximum mileage made by snowplows in road service in any one day last winter was 7,096 miles. This involved the employment of approximately 70 train crews. In addition, many switch engine and yard crews were required for snow removal in the principal yards.

Terminal Operations

Toronto and Montreal are the two big terminals on the Eastern lines of the Canadian Pacific. The winters at Toronto, which is located about as far north as St. Paul, Minn., are, according to the Canadians, ordinarily mild. Winters at Montreal, on the other hand, are much more severe, with lower temperatures and an average annual snowfall, as mentioned previously, of approximately 120 in. Last winter, however, the total snowfall at this point was only about 100 in., or 20 in. below average. For the purpose of illustrating the methods used by the C. P. R. in keeping its terminals open, those used in the Montreal



A Sicard Snow-Blower in Action, Throwing Snow Far into the Clear

One of the Trucks, Equipped with a 16-Ft. Blade, Plowing Snow from Teamways at Place Viger, Montreal

terminals, comprising 182 miles of side tracks and 1,450 switches, will be described.

When a heavy snowfall occurs, yards are first spread with Jordan spreaders equipped with ice-cutters, and the snow is pushed away or is piled on suitable tracks to be loaded into trucks or on cars for disposal. In addition to the spreaders, a wide variety of other equipment is used. For example, the equipment used at Montreal last winter was as follows:

1	Sicard snow-blower and loader
1	Barber-Greene snow-loader
4	Mercury-type trucks with revolving brooms
1	Bulldozer (extras rented)
5	Air compressors
3	Heavy trucks with 16-ft. snowplow blades
42	Snow trucks (rented)
3	Jordan spreaders
3	Ice cutters
2	Lidgerwoods and plows
125	Hart ballast cars
7	Melting pits

Most of the snow is loaded by the Sicard snow blower or by the Barber-Greene loader. The Sicard snow-blower and loader is a special machine mounted on a heavy auto truck, which includes a front attachment consisting of a scoop about 10 ft. wide, a spiral scarifier and turbine-type fan, and an adjustable spout for loading snow onto cars or into trucks. When it is not desired to load the snow, the snow passing through the fan can be by-passed before reaching the spout and can be blown to one side a maximum distance of about 120 ft. This machine will work in snow up to four feet in depth and can load a ballast car in as little as one minute. Furthermore, the snow is blown into the cars so hard that it consolidates in the car, taking only about one-fifth the space of loose snow. The machine is equipped with rubber tires for road use and with auxiliary flanged wheels so that it can also be used on the track.

The Barber-Greene loader is an endless-conveyor-type machine mounted on a tractor. The snow boom, or conveyor, consists of a belt with slats for carrying the snow to the top of the boom. The snow is unloaded at the top of the boom onto a horizontal shuttle conveyor which can be inclined to one side or the other for loading into cars or trucks alongside. This machine will load a truck in

Truck Dumping Snow into One of the Seven Melting Pits at the Montreal Terminals

20 to 30 sec. and is used in team yards, on platforms, in car repair yards, etc.

Hart ballast cars are used for snow disposal work. The loaded cars are taken out to elevated snow-unloading sidings and the snow is unloaded by a ballast plow and Lidgerwood. The cars have no ends and steel aprons are laid between them to permit the passage of the ballast plow from car to car. When this plow passes through, the side doors of the cars open automatically and the snow piles along both sides of the track. This is subsequently spread away from the unloading track by a Jordan spreader.

The bulldozers are used for plowing snow into windrows on team tracks and roadways so the Barber-Greene and Sicard machines can be used to better advantage in loading it. In some cases, the snow is loaded by crawler cranes with buckets or crawler tractors with front-end loaders.

Switches and Crossovers

In general, except around terminals, switches are cleaned by hand, using a special heavy-fibre broom. In the more important terminals with numerous switches and crossovers a series of underground steampipes, fed from a steam main, have been installed, to melt the snow and clear the ground. Along the lead tracks in some important yards, air tools and portable compressors are used to chip ice around switches. At these points, before the winter sets in, air pipe is laid along the tracks, with suitable connections for the compressors and the pneumatic ice-cutting tools. The air is also used to blow the snow and chipped ice away from the switches. Hydrocarbon gas (snow-melting oil), which is poured on the switches and lighted with a torch, is also used extensively around interlockings and other important switches.

The Canadian Pacific does not use many switch heaters, except for a few around interlocking plants, but it intends to install more of these heaters in the future. Years ago, experiments were tried in melting snow around switches with a direct application of steam, but this method caused bad icing conditions during extremely low temperatures and was abandoned.

Platforms and Driveways

The Mercury trucks with revolving brooms are used primarily to clear away comparatively light snowfall on important station platforms. The brushes on these machines are mounted at an angle to brush ahead and to one side. Light tractors with angle snowplow blades are also used for clearing snow from platforms and station runways, depositing the snow in windrows for subsequent loading. Salt and sand mixed are used to melt the ice which forms on station platforms.

The heavy trucks with the 16-ft. blades are used for clearing station roadways, team track roadways, freight shed roadways, etc., for getting them into service quickly, after which the snow is loaded into trucks by the Barber-Greene or Sicard snow loaders. At many outlying locations arrangements are made with municipal or local highway authorities to have their snowplows clean out station roadways as they pass by on adjacent streets or highways.

Melting Pits

There are seven snow-melting pits in the different yards at Montreal, which are about 6 ft. by 6 ft. and about 5 ft. or 6 ft. deep. These pits have bottom outlets for cleaning purposes only, which are kept closed while the pits are in operation, and outlets at the top, at about ground level, draw off the water from the melting snow. Each pit is equipped with a horizontal set of pipes near the bottom, the pipes being perforated with 3/16-in. holes, and live steam at about 90-lb. pressure is used for melting purposes. The pits are full of water when in operation and the live steam agitates the water and keeps it at a sufficiently high temperature to melt the snow dumped into them. These pits are usually serviced with steam from stationary power plants, but, where this is not possible, a locomotive is used.

Smaller snow-melting pits are located in some of the turntable pits. The snow is pushed into these pits with small hand-operated plows. Turntables are designed with a steampipe under the circle rail, and transfer tables at shops have steampipes under the transfer table rails—in each case to keep the rails free of ice and snow at all times.

Man-power

In terminals and yards, when a heavy snowfall occurs, the roadmaster picks up all the extra men available to assist in clearing operations. These men are divided into day and night gangs to provide continuous operation. During the last winter when it was difficult to get men, yards and terminals were not cleared quite as fast as in normal times, but there were no serious train delays on this account. At Montreal last winter an average of about 550 extra men were employed in snow removal work, with the maximum number reaching 828 at one time. These numbers do not include the operators of machines, or the men employed following the machines, but only those employed for cleaning out switches, railway crossings, shop tracks and other inaccessible places. Including the operators of the machines and the section forces who devote practically all of their time to snow removal during storms, the Montreal terminals last winter had a maximum of 1,340 men working on snow clearance at one time.

The various means of winter operation and snow clearance on the Canadian Pacific described have been developed under the general direction of W. M. Neal, vice-president in charge of system operations. The men in charge of the work on the Eastern lines include E. D. Cotterell, vice-president and general manager, Eastern lines; W. O. Cudworth, engineer maintenance of way, Eastern lines; and the general superintendents and district engineers on the various districts. J. A. Irvine, district engineer of the Quebec district, with headquarters at Montreal, is in charge of the terminal work at that point.

One of the 42 Rented Snow Trucks Used in the Montreal Terminals Last Winter Being Loaded by a Crane

Lea Warns N. I. T. L. on Nationalization

Representative Lea urges fair transport plan for carriers and shippers, and hits expectation of continued "miracles." Bennett elected president

GOVERNMENT ownership of the railroads and other branches of our transportation system is opposed to American economic policies and would undermine our democratic system. That was the message delivered by Clarence F. Lea, chairman of the Interstate and Foreign Commerce Committee of the House of Representatives, November 29, when he addressed more than 600 persons at the 38th annual two-day meeting of the National Industrial Traffic League at the Palmer House in Chicago. Representative Lea was the only speaker at the convention.

1946 Officers

The officers elected to head the organization for the coming year are: President, Alonzo Bennett, vice-president, Federal Compress & Warehouse Co., Memphis, Tenn.; vice-presidents, A. H. Schwietert, traffic director, the Chicago Association of Commerce, Chicago; Roy W. Campbell, manager of the traffic department, Butler Brothers, Chicago, and chairman, executive committee of the N. I. T.; and Irving Lyons, vice-president, California Packing Corporation, San Francisco, Cal. Those re-elected to office were: executive secretary, Edward F. Lacey, Washington, D. C., and assistant treasurer, Ernest E. Hostler, Washington, D. C.

Regional vice-presidents elected were as follows: New England region, W. P. Libby, North Plymouth, Mass.; Trunk Line region, E. D. Sheffe, New York; Central Freight Association region, George A. Blair, Chicago; Western Trunk Line region, L. P. Siddons, Colorado Springs, Colo.; Southwestern region, F. A. Leffingwell, Dallas, Tex.; Southeastern region, R. A. McCaffrey, Birmingham, Ala.; Northwestern region, F. B. Townsend, Minneapolis, Minn.; and Pacific Coast region, W. G. Stone, Sacramento, Cal.

The two-day session opened on the morning of November 29 with the retiring president, John B. Keller, assistant general traffic manager, Koppers Company, Inc., wielding the gavel. The appointment of several committees took up most of the morning session, and, following the noon luncheon Representative Lea delivered his address. He began by presenting a glowing tribute to our transportation system and its efforts toward winning the war. He said:

"In meeting the problems presented by war, transportation did the impossible. In meeting the problems of peace we cannot expect it to continue to work miracles and live on as a part of our free enterprise system if it is starved or throttled by forces within itself or by regulations that impose impossible restraints."

The speaker explained to his audience three principles which he declared motivated a current post-war survey which is being undertaken by the subcommittee on transportation of which he is the chairman. These principles, Representative Lea declared, are: (1) That carriers are entitled to a reasonable return on their investments, consistent with economic and careful management; (2) shippers are entitled to reasonable rates plus adequate service; and (3) the carriers are entitled to fair and impartial regulation. Representative Lea emphasized the latter point when he said:

"Government ownership of our transportation system is opposed to our national economic policies and would undermine our American democratic system. During the war and now in the redeployment program, transportation has worked marvels. In every line, whether by rail, water, air, highway or pipeline, the performance of transportation has exceeded anything that the American people had any right to expect. We know, however, that transportation is going to face new demands that will challenge all of its genius.

"At the same time it will be presented with new opportunities for service. But it is not entirely a rosy picture. We are going to begin this new era of transportation with difficulties of new and far-reaching consequences. From improved highways and improved facilities operating over the highways, from vastly expanded airlines and facilities for the operation of airlines, and from water transportation and expanded pipeline facilities will come new and far more aggressive and challenging competition, one against the other and against the rails, than we have ever witnessed in this country before. This situation, bringing with it difficulties of monumental proportions, is nevertheless intriguing in its challenge and possible advantages to the nation if we face them courageously and prudently.

The Competitive Situation

"From the standpoint of the nation's welfare more thought must be given to this competitive situation, to the regulation of competitive situation, to the regulation of competition in transportation, not only between the different types, but also between the services of the same type. We must accept the fact that each method or type of transportation performs a valuable service and that each has its particular advantages, in which, to some extent at least, it excels all of its competitors."

Railroads, the speaker declared, form the one branch of transportation with which we cannot as a nation do without. Without railroads the country would be helpless, yet at the same time, he urged, railroads must win and maintain the respect of those who employ them. He suggested that, insofar as the financial status of American railways is concerned, "economic hills and valleys might better be leveled out if the railroads had more bonds and less stock in their capitalizations."

Representative Lea stated that the committee which he heads does not propose to tear up present laws and create new ones and neither does it intend to be used to "pull anyone's chestnuts out of the fire." He concluded by saying:

"The matter of financing is just as important to the public as it is to the carrier. The investor is important. He wants to place his money where he can hope for a fair return with a considerable degree of security. No matter how greatly we may need investment, however, it will not be forthcoming unless we can give to those who have money to invest this reasonable security."

Committee Reports

With only the one speaker scheduled to address the two-day meeting, the balance of the two morning and two afternoon sessions were given over to the reading and approving of various standing committee reports. Of these only one was tabled after more than an hour of spirited debate; it concerned user charges on inland waterways.

In its report of the passenger traffic situation, the passenger traffic committee described the drastic shortage of cars which began with the commencement of the war and increased throughout the length of the conflict despite the combined efforts of various governmental agencies to discourage civilian travel. This was done by furnishing less Pullman space to Florida, taking Pullman cars out of service and warning the public to stay home and not attempt to travel to meet returning service men. Another important step was put in operation in July when the Office of Defense Transportation General Order No. 55 made all railway passenger, baggage and express cars available for the preferential transportation of troops and materials of war. Despite the present severe

(Continued on page 943)

4 Bidding Groups File Pullman Briefs

Oral argument of all concerned to be aired December 10, when the special three-judge expediting court convenes

EACH seeking permission of the Federal District Court in Philadelphia, Pa., to acquire the stock of the Pullman Company, the four bidders—Otis & Co., the railroads, Glore, Forgan & Co., and the Standard Steel Spring Co.—filed briefs with the special three-judge expediting court on December 1. It was the contention of each group that the sale to any other bidder would be contradictory to the court order directing dissolution of the Pullman Company's alleged sleeping car monopoly.

An 18-page brief was submitted by Pullman, Inc., as well, outlining its reasons for electing to sell the $75 million business to the railroads now conducting approximately 90 per cent of the sleeping car business of the country. (Decision to sell to the latter group was reported in the *Railway Age* of November 17, page 831.) The briefs will be studied by Senior Circuit Judge John Biggs, Jr., and Circuit Judges Albert B. Maris and Herbert F. Goodrich, and on December 10 and 11 oral argument of all parties will be heard. One point which is expected to draw fire will be whether or not the court has any right to refuse approval of the announced choice of Pullman, Inc.

The Railroad Brief

Petitioning the court to approve their plan for conduct of the sleeping car business, the group of railroads asserted that sale of the stock to any other bidder "will not be in the public interest and will be contrary to the court's findings in the case." They hold that their plan, representing "unqualified acceptance by the railroads" of Pullman's proposal to sell "has thus ripened into a contract which Pullman is submitting to the court for approval." Such contract, it is stated, "is exactly what the court contemplated should be done when it ordered Pullman to dispose of the stock," and will "satisfy the court's anti-trust purpose, as will none of the other proposals."

Coast-to-coast through service, which throughout the November 5 and 6 hearings, was dwelt upon principally by the Otis group, can best be assured, the railroads' brief pointed out, by sale of the company to them. "Inauguration of through transcontinental sleeping car service, which is under active study and investigation by the railroads and may be expected to materialize in the reasonably near future, would or could in no way be aided or expedited by the intervention of an independent sleeping car operator," the railroads assert. Describing as "disingenuous," the effort of Robert R. Young, chairman of the board of the Alleghany Corporation and a prominent figure in the Otis group, "to popularize his Otis-Young proposal by suggesting that the sleeping car company under his control and management would inaugurate through coast-to-coast sleeping car service," the brief argues that "the sleeping car company does not and cannot have the say as to such operation." Establishment of such lines is necessarily a function of the particular railroads involved, and the brief adds, "Mr. Young admitted as much on cross examination."

Should an outside concern be awarded the business, the buying group of railroads contend, that concern would have an "economic club" which it could wield to dictate "practically its own terms to the railroads." And thus engaged in business for "profit and not for philanthropic purposes," such economic power would be used to further itself, and not the railroads, the brief suggests. "There is no doubt at all that it is the intention of the Otis group to recreate the same conditions which placed Pullman in a position of complete control and enabled it to perpetuate its monopoly by imposing upon the railroads terms favorable for that purpose," the brief adds.

Answering the Young-Otis charge that acquisition of such ownership by the railroads would be injurious to smaller lines, the brief indicates that the only railroads, small or large, opposing the railroads' proposal are the Young-controlled Chesapeake & Ohio, Nickel Plate and Pere Marquette. His control of these railroads, and his "announced hopes" for control of the Missouri Pacific would "inevitably enhance the temptation to which he and others associated with him in the management of the sleeping car company would naturally be subject to favor his railroads in their management of the sleeping car company," the brief adds.

RRs Will Promote Competition

The railroads assert their plan of ownership will promote competition, will result in "a much greater likelihood of a reduction in the cost to the public of sleeping car travel," and will best serve the interests of labor, in view of their long experience in dealing with employees under the Federal Railway Labor Act, and "the long history of stabilized conditions and peaceful relations that have existed between the railroads and their employees."

Exception was taken to the Glore, Forgan offer, on the basis that it looks to a distribution of the stock to the public for underwriters' profit, and that no assurance can be given as to the experience or fitness of those who would come into control of the sleeping car service by that means.

Pullman's Own Choice

The Pullman, Inc., brief, filed by counsel headed by former U. S. Senator George Wharton Pepper, outlined six reasons for choosing to sell to the railroads, and as a basis for court approval of the contract. These are:

"(1) Pullman, Inc., like any other vendor, has the right to sell to whom it pleases, always provided that the sale is out-and-out and involves no continuance of the monopoly which it is the function of the court to dissolve.

"(2) The contract with the 'rails' is the outcome of a long negotiation specifically authorized by the court in its order of March 22, 1945. The court having authorized the negotiation and Pullman having carried it to a successful conclusion, the court should not now withhold approval.

"(3) There is no 'after-discovered evidence' requiring any such change of position by the court. All the facts about interlocking directorates and the like were fully explored in the original proceeding.

"(4) The subject-matter of the sale is the shares of stock of a concessionary. The equipment owned by the concessionary is in large part the precise equipment which the railroads have the right to purchase under their contracts. The exercise by the railroads of these rights would exhaust the Pullman fleet and leave nothing for a prospective purchaser. Since the railroads were not original parties to the litigation and their contracts were not adjudicated by the court, and as all parties to the litigation had full notice of them, obviously the rights of the 'rails' are not affected by the existent decree. Moreover the 'rails' have a conceded right to grant or refuse a concession to any particular applicant. If the present contract is disapproved and if the 'rails' decline to do business with any of the three applicants, the innocent stockholders of Pullman, Inc., will be deprived of a favorable market for their Pullman stock and will be forced to a piecemeal liquidation of their sleeping car business.

"(5) The 'rails' have the entire responsibility of supplying adequate sleeping car service to the public. If they are denied the right to purchase what Pullman, Inc., has to sell, the public will have to await the acquisition of substituted equipment and ultimately pay rates correspondingly higher.

"(6) The government's basic theory in this entire proceeding has been that

the Pullman Co., as a monopolist, victimized the 'rails' by imposing upon them unwelcome contracts which prevented the 'rails' from conducting their own sleeping car operations if and when they saw fit so to do. The logical outcome of a proceeding which has liberated the 'rails' from this domination is a direct acquisition by the 'rails' themselves of the property necessary to the discharge of their public duty. In recognition of this situation the Department of Justice acquiesced in the court's order of March 22, 1945, and should not now be heard to change its position."

In the matter of the court's right to reject any contract or sale which would perpetuate the monopoly of the sleeping car business, Pullman, Inc., declares itself in full agreement. But the brief holds, "If the court were now to assume a power to determine which of several potential purchasers would probably render the most acceptable sleeping-car service to the public and were to attempt to compel a sale to the favored purchaser, it would (we submit) be exercising an administrative jurisdiction which the court does not possess.

"Acceptable sleeping-car service," the brief continues, "like the movement of freight and passengers, is a function of transportation. As an interstate function it is within the regulatory jurisdiction conferred by Congress on the Interstate Commerce Commission. The distinction between the judicial enforcement of the anti-trust laws and the administrative regulation of interstate transportation is sufficiently clear. To ignore the distinction would inevitably lead to a regrettable conflict of jurisdiction between court and Commission."

Pullman's Objection to Otis

The Pullman, Inc., brief described the Otis offer as "so indefinite that it has nothing to recommend it," and said that Pullman "would not be justified in contracting to sell to a purchaser whose ability to consummate the sale would vanish if an operating contract with the more important railroads proved unobtainable." And, the brief went on, with many of the important railroads (in the event of a compulsory sale to a non-railroad group) having declared they will buy the heavyweight and lightweight cars under existing contracts, it was entirely possible others would follow. In which event, Pullman, Inc., pointed out, the purchaser "would be left with a lot of shops, laundries, inventories and other attached properties with few or no sleeping cars to operate and with the possibility of getting little contract mileage on which to operate them." In short, pointing to the net worth of Otis & Co. as only $1,500,000, the Pullman brief describes sale to such a purchaser as "not much more than a gamble."

Essentially an underwriters' project, the Glore-Forgan proposal, according to the Pullman brief, would have the right to call the whole deal off if market developments made it impracticable to dispose of the stock. Conditioned, too, upon the purchaser's ability to make an operating contract with the railroads, Pullman feels that "from the point of view of the public, there could be no assurance that the connection and influence of Messrs. Glore, Forgan & Co. would survive the public distribution of stock."

The Standard Steel Spring offer, like that of Glore, Forgan, is conditioned upon ability to contract with the railroads, and according to Pullman, "subject to the same uncertainties." "As a financial proposition," the brief adds, "it is not in the same class as the offer of the railroads," though it is "preferable" to the other two.

Among the propositions in support of its bid, the Glore, Forgan brief described its plan as (1) "an appropriate and easily effected means for completely separating Pullman's sleeping car business from its manufacturing business"; (2) "not a plan for liquidation . . . the Glore plan will be so strongly financed as to permit continuance of the sleeping car business"; (3) "not dominated by any of its railroad customers . . . independently owned and managed"; (4) "the only plan which gives full effect to the final judgment"; and (5) sale to the railroads "will create a new monopoly and thwart the intent and purpose of the final judgment."

Glore, Forgan's Presentation

In developing its opposition to the purchase of the Pullman Company by the railroads, the Glore, Forgan brief indicated that officers and directors of the Pullman Company necessarily would be officers and directors of the railroads, or their nominees. It opposed the Standard plan as paying "lip service to the problem of pool and through-line operations." Averring that Standard admittedly had no intention of acquiring new sleeping cars, and that under its pool only second-hand cast-offs would revert to the pool, Glore, Forgan holds that railroads owning cars will allocate such cast-offs to the pool "only when such sleeping cars are no longer desirable to their own fleet."

Glore, Forgan took exception also to the Otis plan for its "serious and dangerous defect of placing the ownership of the Pullman Company in persons having a controlling interest in the Chesapeake & Ohio Railway Company, the New York, Chicago & St. Louis Railroad Company and Pere Marquette Railway Company, and who are working to increase their interest in the Missouri Pacific Lines."

It is the contention of Standard Steel Spring Company that the Pullman monopoly will be much stronger if the railroads acquire the sleeping-car business. In its brief, Standard asked the court to disapprove the contract now tentative between Pullman, Inc., and the railroads. Its own offer, Standard feels, would dissolve monopoly and furnish better conditions for the public.

The Otis brief states that "the criteria by which the court should judge the several offers are as broad as the purpose and policy of the Sherman Act," and asks that it consider the following 10 points:

(1) The most acceptable offer is the one that stimulates the greatest amount of competitive manufacturing in the sleeping car business.

(2) A second and equally important test is whether the new management is one that proposes to stimulate and expand a nationwide demand for sleeping car travel in competition with air and motor travel.

(3) . . . whether the offer proposes to replace the present pool of sleeping cars with modern equipment.

(4) . . . whether the offer proposes to maintain a modern pool constantly kept up to date, available without compulsion or discrimination to all railroads.

(5) . . . the competitive record of the new management.

(6) . . . which offer provides for the most complete separation of the sleeping car company from any ownership or control, direct or indirect, of Pullman, Inc., or its affiliates, and from all parties which share with it a community of interest.

(7) The court must consider the public interest in developing new recreational areas and in unifying the nation by expanding education and vacation travel. The most acceptable offer is the one that proposes to best serve that interest.

(8) The court must consider the public interest and the interest of labor in developing new manufacturing industries capable of continuously supplying cars for an indefinitely expanding demand for travel in an economy where power will be cheaper and more plentiful and all means of production will be more efficient.

(9) . . . whether it will contribute to the establishment of transcontinental trains.

(10) The acceptable proposal must preserve the right of every railroad to provide its own equipment, if it finds it economical to do so, without losing the necessary privilege to use a pool of equipment or service for needs which the individual railroad cannot economically provide.

Otis Reiterates Its Plans

Offering to replace the present fleet of sleeping cars, the Otis-Young-Kirby group plans a fleet to cost in excess of $500,000,000, with complete replacement every 10 years. For this reason, the Otis brief argues, "it is the only proposal which will reestablish competition in sleeping car manufacture and dissipate the effects of the monopoly which was maintained by Pullman, Inc., for so many years." The petitioner, it points out, "has faith in expanding passenger car transportation"; it proposes to enlarge the sleeping car pool and to create a demand to fill those cars. The Otis brief further holds it is the only bidder which "assures complete separation from manufacturing interests, and from railroad and banking interests which desire to suppress expansion." It finds the control and management of the railroad

(*Continued on page 943*)

Modern Power Saves Train-Miles

Cotton Belt traffic density at all-time peak, yet use of modern Diesel and steam locomotives brought about the reduction in number of trains this road operated

IN March, 1940, freight traffic density on the Cotton Belt was 3,489 net ton-miles per mile of road per day; in 1941 the average had risen to 4,719 and by 1942 it had further increased to 8,705. Throughout the war, traffic density on the road increased each year and in March, 1945, the density was 11,173 net ton-miles per mile of road per day.

Naturally such a tremendous increase in traffic resulted in unprecedented demands on all of the road's facilities, and particularly on the motive power. In 1940 the bulk of the freight traffic was handled by 15 modern 4-8-4 type steam locomotives, 10 of which were purchased from the Baldwin Locomotive Works in 1930 and 5 of which had been built in 1937, in the company shops at Pine Bluff, Ark., and 5 mountain type locomotives which had been acquired from the Florida East Coast in 1936. Peak traffic movements, local freights and many branch line trains were handled by a large fleet of heavy consolidation engines purchased at various times between 1912 and 1923.

Early in 1941 the management of the Cotton Belt was convinced that war conditions abroad were such that they would have serious repercussions in this country that would bring about greatly increased traffic to the road. At that time there were already under construction numerous "defense plants" and army camps in the Southwest, some on Cotton Belt rails. In addition general freight traffic was increasing rapidly due to the requirements of various war industries in other parts of the country for raw materials. There was already evidence that submarines were taking their toll of Transatlantic shipping, with increasing emphasis being placed on longer rail hauls of all commodities, particularly petroleum and its products, to the East coast ports in place of shorter hauls to Gulf ports in order to increase the utilization of hard pressed shipping and to minimize the submarine menace by reducing ocean hauls to a minimum.

In the light of these conditions it was decided that the first impact of further increased traffic would fall on the motive power, which, while ample for current business, would prove inadequate if the expected load developed. Accordingly, at that time seven heavy 4-8-2 locomotives were purchased from the Rock Island and placed in general freight service after first overhauling and modernizing them. As part of the rebuilding program, the engines were equipped with roller bearings on all engine wheels, the wheels were recounterbalanced, applying new main wheel centers where necessary, and light weight main rods and multiple bearing crossheads were installed. The single forced-feed lubricators on the locomotives were considered too small and were replaced by larger ones, as well as adding a second lubricator to take care of the machinery. The boilers were given a thorough overhauling and were reinforced sufficiently to allow an increase in boiler pressure from 200 lb. per sq. in. to 220 lb., and thermic syphons were applied. The old 28 in. by 28 in. cylinders were replaced by 26½ in. by 28 in. cylinders and the water capacity of the tenders was increased from 10,000 to 11,000 gal., the limit of the journal capacity. Three of the locomotives were converted from coal to oil fuel, the other four being oil burners when purchased.

When completed these locomotives were placed in general freight service north of Pine Bluff, where their tonnage rating varies from 4,600 tons to 5,000 tons, depending on the subdivision, as compared with a rating of from 4,200 tons to 4,600 tons for Consolidation engines in the same territory. In addition, because of their larger boilers, these locomotives handle their assigned tonnage over the division in less time than the smaller ones.

4-8-4's Built by Own Forces

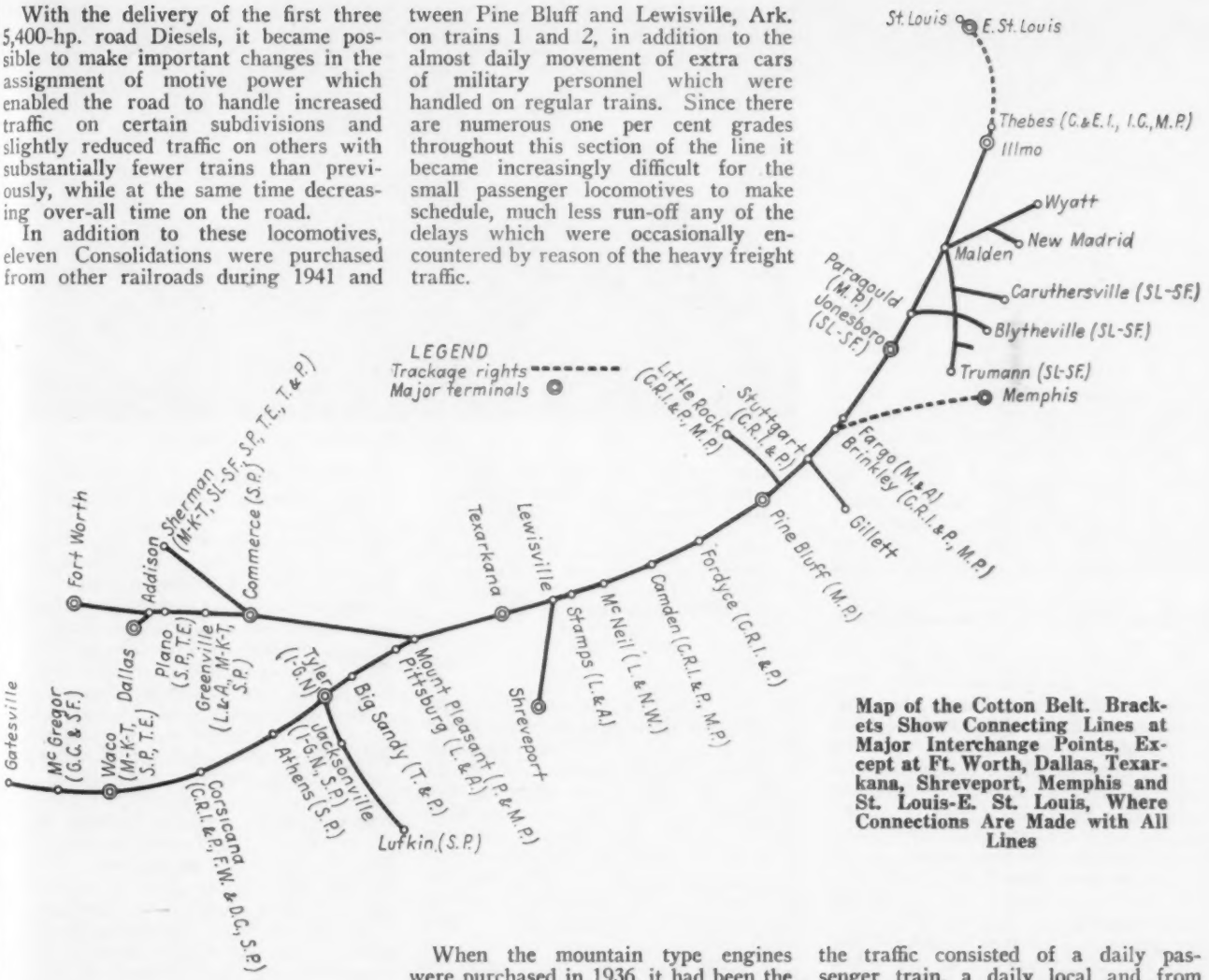
Late in the year it was determined that additional motive power was needed to handle the increasing business and application was made to the Office of Production Management for authority to construct five additional 4-8-4 type locomotives in the company's shops at Pine Bluff, and for the purchase of three Baldwin 1,000-hp. Diesel-electric switch engines. The success with the initial order for three Diesel switchers led to further orders and when the last is delivered this year the Cotton Belt will have 23 such locomotives in service. Continuing traffic increases led to a decision, in 1943, to purchase three 5,400-hp. Diesel-electric road locomotives from the Electro-Motive Corporation. The first of these engines was installed in service June 20, 1944, the second June 21, 1944, and the third July 17, 1944.

One of the Five 5,400-Hp. Diesel-Electric Locomotives Received During 1944 and 1945 from the Electro-Motive Corp., Handling a Southward Freight Train of 4,251 Actual Tons at Van Duzer, Ark.

With the delivery of the first three 5,400-hp. road Diesels, it became possible to make important changes in the assignment of motive power which enabled the road to handle increased traffic on certain subdivisions and slightly reduced traffic on others with substantially fewer trains than previously, while at the same time decreasing over-all time on the road.

In addition to these locomotives, eleven Consolidations were purchased from other railroads during 1941 and 1942. All but two of these were small engines which were suitable only for local train and switching service, but by their use it became possible to transfer several heavy Consolidations to through freight train service. It was recognized at the time of their purchase that these locomotives were obsolete and relatively inefficient, but the pressure of expanding traffic was so great it was not possible to purchase or build modern power quickly enough to meet the situation. Further, it was known that much of the wartime traffic was of a temporary nature and an additional heavy investment in new locomtives could hardly have been justified. In March, 1945, after the road's motive power supply had been further augmented by the purchase of a considerable number of Diesel-electric locomtives, two of these engines were sold to a small connecting railway.

The heavy passenger trains then being operated were largely protected by a group of 4-6-0 engines. As wartime passenger traffic increased rapidly, passenger train lengths increased from a pre-war normal consist of five cars between Pine Bluff and Dallas, Tex., to eight cars, on trains 5 and 6 and from six cars to eight cars between Pine Bluff and Lewisville, Ark. on trains 1 and 2, in addition to the almost daily movement of extra cars of military personnel which were handled on regular trains. Since there are numerous one per cent grades throughout this section of the line it became increasingly difficult for the small passenger locomotives to make schedule, much less run-off any of the delays which were occasionally encountered by reason of the heavy freight traffic.



Map of the Cotton Belt. Brackets Show Connecting Lines at Major Interchange Points, Except at Ft. Worth, Dallas, Texarkana, Shreveport, Memphis and St. Louis-E. St. Louis, Where Connections Are Made with All Lines

When the mountain type engines were purchased in 1936, it had been the intention to use them in regular freight service and for such heavy passenger trains as were operated, but due to the heavy pressure of freight traffic, it was necessary to keep these locomotives out of passenger service for some time, even though important savings would accrue through their use by eliminating doubleheading with the 4-6-0's. Late in 1943, however, because of the acquisition of additional freight locomotives, to be described later, four of these locomotives were regularly assigned to passenger train operation south of Pine Bluff, the fifth being retained in freight service north, but also used to protect scheduled shoppings.

Commencing during the latter part of 1941, the rail movement of petroleum and its products to the East grew rapidly. Shreveport is the location of two medium size refineries and is also a major terminal of railroads serving the East Texas and Western Louisiana oil field. It also has direct rail connections via the Kansas City Southern and the Southern Pacific with large refineries on or near the Gulf of Mexico. Therefore the Shreveport branch became the first line to feel the impact of the rapidly expanding oil traffic.

Normally the Shreveport branch is a secondary main line. Prior to 1941 the traffic consisted of a daily passenger train, a daily local and from two to three through freight trains in each direction. The through tonnage rating of the Consolidation type locomotives then used exclusively on this branch was 2,000 tons northward and 1,800 tons southward between Shreveport and Pine Bluff, which was ample to handle the small volume of traffic then being offered.

The rapidly expanding oil traffic, however, soon made the use of the small engines a decided handicap since they could handle only about 35 loaded tank cars through and the northward oil traffic alone was already exceeding 100 cars per day. Furthermore, the addition of such a large number of trains to the already busy main line between Lewisville and Pine Bluff was causing unnecessary congestion in that territory.

In searching for the best means of overcoming the problem presented by the sudden influx of traffic on a normally light traffic line numerous proposals were considered and rejected, including one for the continued use of the small engines on the branch and assembling longer trains for the 4-8-4 engines at Lewisville. In the meanwhile, the engineering department was also making a survey of the line to determine what changes might be required to permit the use of the larger

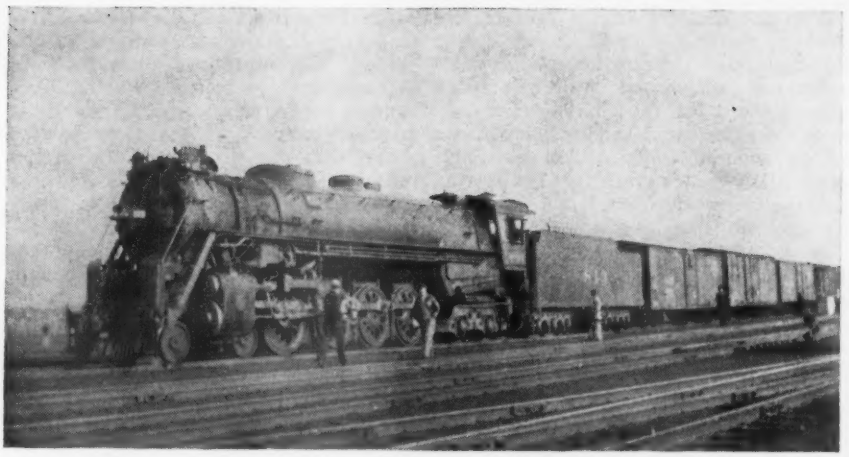
power on the branch. When the various data had been assembled it was found that, due to the rehabilitation of the branch in 1940, the entire line except for the approaches to the Red River bridge at Shreveport and the yard tracks in Shreveport yard were suitable for use by these engines.

It was further discovered that the limiting bridge approaches could be strengthened sufficiently to permit operation by the 800 class engines by the simple expedient of placing four additional frame bents, set on blocks laid on the surface of the ground, between the existing bents. With the prompt completion of the necessary bridge work, operation of heavy power on the Shreveport subdivision was begun late in 1941 although there were at that time only two yard tracks in Shreveport which could be used by these engines. As rapidly as it could be done the remainder of the yard was laid with heavier rail, removing all track restrictions in the train yard.

Modern Power vs. Consolidations

As traffic continued to increase through 1942, the pressure on the Pine Bluff and Shreveport subdivisions became more intense. The 800 class, 4-8-4 type, engines were still being operated through between E. St. Louis, Ill., and Texas points and, since there were but 15 of these available, it was necessary to continue the operation of a large number of Consolidation locomotives in the territory between Pine Bluff and Shreveport and Texarkana. As explained above, these engines had a through tonnage rating of 2,000 tons northward and 1,800 tons southward, while the 800's would handle 3,300 tons northward and 2,900 tons southward, or approximately one and one-half times the tonnage of the smaller engines. In terms of cars, a Consolidation engine would handle about 35 loaded tank cars as compared with 55 for a 4-8-4.

In addition, the Consolidations were introducing serious dispatching problems. In the first place these engines carried a 38 m.p.h. speed restriction for those with 57-in. drivers and a 45 m.p.h. speed restriction for those equipped with 61-in. drivers in territory where the general speed restriction was 50 m.p.h. for freight trains. Second, due to their limited boiler and cylinder capacity they had a tendency to drag on the long 1 per cent grades which are frequent on this part of the line, while the 800's, in spite of their longer, heavier trains, were able to maintain their speed over all but the longest of the hills. Third, due to their larger capacity tenders, the 800's were able to handle full tonnage from Pine Bluff to Texarkana, 152 miles, with only one water stop, as compared with four water stops for the Consolidations. Similarly, the larger engines can run from Pine Bluff to Shreveport, 185 miles, with only three stops, against six needed by the small engines. Operating conditions were such that it was desirable to operate numerous freight trains as sections of each schedule with the result that unless extreme care was used in starting trains out of their initial terminals they had a tendency to bunch behind the slowest engine. Finally, the number of trains being operated over the single track line between Pine Bluff and Lewisville, the junction with the Shreveport branch, was approaching 40 per day and considerable delay was being incurred meeting trains and in issuing train orders fast enough to keep trains moving.



One of Five 4-8-4 Type Locomotives Built in the Road's Pine Bluff Shops in 1937 Leaving Valley Junction Yard at E. St. Louis with a Fast Freight Train Destined for Texas and California Points. Five Similar Locomotives Were Built in 1942

In order to reduce the number of trains operated, and at the same time eliminate the blunching of trains because of the use of both drag engines and modern high-speed power, it was decided to assign all 15 of the modern 4-8-4 locomotives to the territory between Pine Bluff and Texarkana or Shreveport, assigning the smaller engines to the easy grade lines north of Pine Bluff or to the lighter traffic Texas division. In making this change it was recognized that additional train miles would be made on these other divisions by reason of the substitution of the smaller engines, but it appeared that this was the only possible solution.

The benefits expected from assigning all of the 800-class engines to the Pine Bluff and Shreveport subdivisions were fully realized with one exception. There was little or no reduction in the number of trains handled. This, however, was not due to continuing the operation of short trains in spite of improved locomotive conditions, but rather to continually expanding traffic. Late in 1942, the first of the new 4-8-4 locomotives was completed and by January, 1943, the last of the five had been placed in service. These engines, after their initial break-in runs from Pine Bluff north to Jonesboro, were immediately absorbed by the operations between Pine Bluff and Texarkana and Shreveport, as the volume of oil reaching the road through Shreveport was now averaging 400 cars a day, with 500 cars per day not uncommon.

Besides the oil through the Shreveport gateway, there was a steadily increasing flow of traffic to the Pacific Coast moving to Texarkana and thence via connections at Corsicana, Tex., Ft. Worth, or Big Sandy. The ordnance plants near Texarkana and McGregor, Tex., were now in full production and local originations of lumber were greatly increased. In addition, two large oil fields had been opened near Lewisville and McNeil, loading about 45 to 50 cars per day between them, while oil was moving in a similar volume from a refinery on the Texas division near Mt. Pleasant. As traffic continued to increase the number of trains operated between Pine Bluff and Lewisville, which had declined slightly at the time of the change in motive power, again rose averaging approximately 40 trains per day through most of 1942 and 1943, and additional motive power again became a necessity.

As on many other railroads, the Cotton Belt's only experience with internal combustion motive power was, until recently, confined to rail motor cars. Prior to 1942 nearly all switching was done by old road engines, mostly of the consolidation and 2-6-0 types. There were also five 8-wheel switchers, which had been converted from 2-8-0 engines, and were in service at Pine Bluff, Ark., and Texarkana yards.

Diesel Switchers Save Money

Late in 1941, faced with rapidly expanding traffic demands, it was decided to purchase three 1,000-hp. Diesel-electric switchers from the Baldwin Locomotive Works, the engines being received the following year and placed in service in Texarkana yard. So successful were these engines that three more were immediately ordered for use in Pine Bluff yard and were received the following year. In 1944 three additional Diesel switchers were received, two of which were sent to Pine Bluff, making a total of five at that point, the other being put in service at Illmo, Mo. So far this year 9 have been delivered and when the order is completed the Cotton Belt will

have 23 of these locomotives in service.

One of the major factors leading to the initial order for three of these locomotives was the fact that each would release an average of one and one-half steam locomotives for road service, a desperate need at the time. Since that time the Diesels have justified themselves on their own merits.

Normal assignments of the Diesel locomotives call for continuous operation 24-hr. per day, each day of the year, except for a single 8-hr. inspection period each month which is lengthened to 14 hr. twice each year for semi-annual inspection. In the major terminals where there is continuous switching the steam switchers were assigned to daily 16-hr. tricks, but for various reasons were unable to maintain such an assignment at all times.

Fuel costs for the steam switchers averaged $1.7519 per hr. in 1944 as against $0.2558 per hr. for Diesel switchers. Total operating costs, not including crews' wages, in that year were $4.6157 per hr. for all steam switchers compared with $0.6822 per hr. for the Diesels. It should be added that in evaluating such figures consideration should be given to the fact that the Diesels were assigned to continuous switching operations and that while some of the steam switchers were in similar service, many were used for stand-by switching or switching in smaller terminals or for industrial work where continuous work was not available. To date none of the Diesel switchers have been given a major overhaul.

In 1943 it was decided to order three 5,400-hp. Diesel-electric road freight locomotives from the Electro-Motive Division of General Motors Corporation, the first two of which were installed in service on June 20 and June 21, 1944, and the third on July 17, 1944. These locomotives were placed in service between Pine Bluff, Ark., and Shreveport, La., and Texarkana, Ark.-Tex. Late in 1944 two additional 5,400 hp. Diesel road freight locomotives were ordered and were placed in service in the same territory on July 4 and 5, 1945. All five of these locomotives are equipped with dynamic brakes.

Road Diesels Increase Tonnage

These locomotives have a tractive effort of 224,140 lb. as compared with 61,564 lb. for the 800-class 4-8-4 steam locomotives. Their northward through tonnage rating between Pine Bluff and Texarkana and Shreveport is 6,000 tons as opposed to 3,300 tons for the largest steam locomotives. Taking into account other factors limiting the length of trains in this territory, each 5,400-hp. Diesel engine will handle on an average about 180 per cent of the train handled by an 800-class engine. From a daily operating standpoint this means that five Diesel powered trains in this territory will handle as much freight as nine trains powered by the most modern steam locomotives on the system. Another important feature in the operation of these locomotives is that an 800-class engine will move north from Pine Bluff yard approximately the same weight train that a Diesel can handle into that point from the south, so that it becomes possible to build a solid train at Texarkana or Shreveport for movement beyond Pine Bluff yard with a minimum of switching at the latter point; and this, in fact, became a common practice with the handling of symbol oil trains.

More Traffic—Fewer Trains

In March, 1944, the Pine Bluff and Shreveport subdivisions produced 337,824,423 gross ton-miles of transportation, operating a total of 1,432 freight trains, or an average of 46.2 trains per day. In March, 1945, with two Diesels in virtually continuous service in this territory,* these subdivisions produced 342,001,577 gross ton-miles of transportation with a total of 1,246 freight trains, or an average of 41.9 trains per day. In this connection, it should be pointed out that these figures cannot be used to indicate the density of the traffic past any given point as they include many short turnaround trips and daily local trains operated simultaneously over three sections of the territory. However, the character of the operations was virtually unchanged in the two years except for the introduction of the three Diesel locomotives, so that a fair comparison can be drawn.

As a result of the use of the Diesels south of Pine Bluff it became possible to operate several of the 800-class, 4-8-4 engines between Pine Bluff and Illmo with similar benefits to operations in that territory. The rating for one of these engines is 5,300 tons between Pine Bluff and Jonesboro and 5,600 tons between Jonesboro and Illmo, as compared with 4,600 tons and 4,900 tons for the largest 4-8-2's in service and with 4,200 tons and 4,500 tons for the smaller 4-8-2's and the consolidations. Since there were only seven of the large 4-8-2's, the bulk of the hauling in this territory in 1944 was being performed by the smaller engines. In actual daily operations neither the consolidation engines nor the 4-8-2's were often loaded to their assigned ratings, while the 4-8-4's were frequently given as much as 6,000 tons.

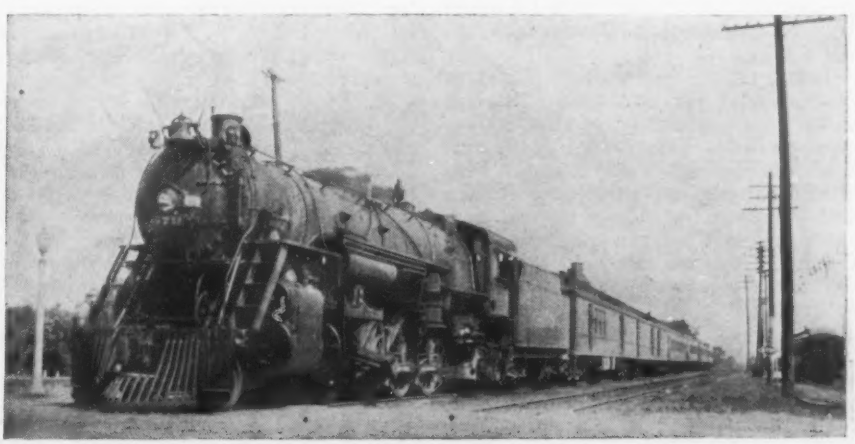
During the month of March, 1944, when there were no 4-8-4 engines operating north of Pine Bluff, the Jonesboro and Illmo subdivisions produced 508,510,901 gross ton-miles of transportation and operated 1,738 trains. One year later, after the Diesels had been placed in service south of Pine Bluff, releasing several 4-8-4's daily for use north, these subdivisions produced 487,724,356 gross ton-miles of transportation, a decline of 4 per cent under the same period of 1944, but operated only 1,435 trains, a decrease of 17.5 per cent in trains run. During March of 1945 the Diesels made 8 round-trips between Pine Bluff and Illmo and one additional trip from Pine Bluff to Jonesboro, for a total of 4,510 miles in this territory.

Although the assigned ratings of the 5,400-hp. Diesels is 11,000 tons north of Pine Bluff, because of other considerations 7,500 tons is about the maximum that they can handle on this line and that only when an unusually large number of heavy loads is available. Since traffic conditions and other operating conditions were not greatly different during March, 1945, than they were in the corresponding month of 1944, and since the Diesels made only a relatively small portion of the total gross ton-mileage (22,648,398 gross ton-miles, or 4.6 per cent of the total) it is apparent that the bulk of the savings in trains operated was due to the partial substitution of modern high-capacity steam locomotives for older and smaller power.

The benefits from the substitution of modern steam locomotives for older types and from the use of the 5,400-hp. Diesels south of Pine Bluff are by no means confined to a reduction in the number of trains operated, important as that is. Considering first the line between Pine Bluff and Illmo where the Diesels were not at this time in daily service, when the smaller engines are used a tonnage freight train leaving Pine Bluff will take water three times in the 142 miles to Jonesboro, if it has any

* Total mileage on this territory in March, 1945, by Diesel locomotives was 21,616.

One of Five Mountain Type Locomotives Purchased from the Florida East Coast in 1936, and Used Interchangeably in Passenger and Fast Freight Service, Shown Here at Brinkley, Ark., with Train No. 5



steam engine other than one of the 800's. Further, if it is powered by a consolidation engine it is not likely to be able to attain a speed of much more than 45 m. p. h. Due to the slower speed and consequent increased time on the road, it is customary for the crew to stop at Brinkley, Ark., to eat, thereby losing another 20 or 30 minutes. Between Jonesboro and Illmo, much the same conditions prevail; at least three water stops, slow running speeds and time for the crew to eat. In addition, because of the increased number of trains that must be run over the single track railroad when small engines are used, there are many more trains to be met with corresponding delays.

With the 800-class, 4-8-4 type locomotives on the other hand, a tonnage train will run from Pine Bluff to Jonesboro and from Jonesboro to Illmo with only one intermediate water stop in each case. Maximum permissible freight running speed for these (and for both series of 4-8-2 engines) is 50 m. p. h. and with a full train the 800's will maintain approximately that speed throughout most of the trip. Because of the decreased time on the road, if a good run has been made on the first half of the trip, the crews will almost invariably complete their runs without stopping for meals at the mid-point.

152 Miles Non-Stop

Much the same thing can be said for the Diesels operating in the territory south of Pine Bluff. On a trip to Texarkana, 152 miles, a single water stop at Camden, Ark., is required by an 800-class engine, while an additinoal stop at Stamps, Ark., or Lewisville, is made by a train destined to Shreveport (185 miles). A train powered by a Diesel, of course, does not require these water stops. To provide the inspection that a steam powered train usually gets when making a water stop, the carmen stationed at Camden, a local terminal, are notified by the operator at that point of the approximate passing time of Diesel powered freight trains and are required to make a running inspection of the train as it passes them at restricted speed. Since Centralized Traffic Control has been placed in service this summer and fall over 123 miles of this territory, it is not unknown for a Diesel powered freight train to run the entire 152 miles between Pine Bluff and Texarkana without a stop.

It was on this line with its numerous curves and 1 per cent grades that the factor of train density was such a serious problem. Whereas before the war, 5-hr. runs between Texarkana and Pine Bluff, 152 miles, were daily occurrences and 6 hr. was considered normal time for a freight train, the war-time traffic density of approximately 40 trains per day under all-steam operation resulted in greatly increased running time. In March, 1944, through freight trains were using about 7½ or 8 hr. for this trip, with 7 hr. considered a good run. A year later 7-hr. trips were common with 6 hr. not unusual, largely due to the reduction in the number of trains operated but also due to the elimination of stops and other delays where Diesels were used.

The dynamic brake has proved itself very successful in reducing train delays due to stops to release brakes, such as frequently occur when enginemen attempt to slow trains at points where speed restrictions are in effect, and in eliminating pulled drawbars resulting from attempting to pull the train before the automatic air brakes have been entirely released. Although three of these locomotives had been in service a year when the data for this article were gathered it was observed that there was still some uncertainty among the enginemen as to what they could confidently expect the dynamic brake to do. This is primarily due to the fact that with only three such locomotives in service on a district where heavy traffic required a large pool of enginemen, the men had not had sufficient experience with the brake to become entirely familiar with its use. Even so, on a recent trip from Pine Bluff to Texarkana the dynamic brake was used eight times, while the automatic air was used only four times, once to stop at Camden when the engine was left unattended while the crew went to eat, once heading in to meet a train, once in stopping for a red block in Texarkana yard and again in stopping the train in the yard. The independent brake was used to stop the train in one passing track after reducing speed with the dynamic brake approaching the remote control switch.

Dynamic Brake Saves Time

At the time these observations were made C. T. C. was in effect from Fordyce, Ark., to Camden, 31 miles, and it was in this section that the advantages of the dynamic brake became most apparent. Approaching Eagle Mills, the speed was about 45 miles an hour when a restricting block signal indication was received. Continuing southward, the home signal at the switch displayed a take siding indication. Being uncertain as to the effects of the new brake, the regular engineman used the automatic air to control the speed of the train entering the turnout with the result that the train stopped before it was clear of the main line and it was necessary to hold out the opposing train until the brakes could be released. Approaching Van Duzer, a few miles further south, with the engine being operated by a road foreman of engines, similar signal aspects were encountered. In this case the dynamic brake was applied when the cab speed indicator showed a speed of 33 m. p. h. and the train entered the turnout at a speed of 15 m. p. h., drifted through the siding and was stopped with the independent air. If at any time in the judgment of the engineman the train was still running too fast, the entire power of the automatic air brake system was available for either service or emergency application.

Approaching Stephens, Ark., the train speed was 30 m. p. h. as the train started down a long 1 per cent grade. According to the orders held, it was necessary to consume two minutes from the station to the south siding switch, a distance of about one-half miles in order to avoid departing ahead of the time specified. Here again the dynamic brake was used to reduce the speed to 15 m. p. h. Since there were 104 cars in the train, had the automatic brake been used a stop to release brakes, probably costing an additional ten minutes, would have been required.

With C. T. C. in service on 123 miles of this line, it seems likely that the use of the dynamic brake will be of particular value in allowing trains to meet with a minimum of delay, since the engineman can safely control the speeds of long trains entering passing tracks, without having to stop to release brakes before the train is entirely in the clear or else accept the danger of a break-in-two when attempting to pull into clear without stopping.

While the Diesels have not yet been in service long enough to make clear comparisons of performance data with the most modern steam locomotives on the system certain comparisons can be made. For the period June 20, when the first of the three original locomotives was delivered, to December 31, 1944, these engines averaged 10,207 miles per month as compared with 7,314 miles per month for the twenty 800-class engines. However, it must be pointed out that none of the Diesels was required to undergo general repairs in that time, while several of the 800's were put through the shops. It is also a fact that the Diesels were favored in the terminals by having full trains always ready for them to return with, while the steam locomotives sometimes were delayed awaiting tonnage.

At the recommendation of the builder, these engines were taken in the shops at the end of the first 100,000 miles and completely taken down. Only minor repairs were necessary and it is not known yet what the permanent repair schedule will be. During March, 1945, Diesel 900 made 11,099 miles, engine 905 made 10,919 miles, while the 910 made only 4,510 miles due to its being in the shop for the 100,000 mile overhaul.

Steam engines 800-809, the original 800-class engines, are scheduled to operate 200,000 miles between Class III or heavier repairs, while engines 810-819 can run 250,000 miles between major shoppings. During 1944 the average cost per train mile for all operating expenses was $1.5067 for trains handled by 800-class engines and $1.5036 for trains handled by Diesel locomotives. The average tonnage per train was 2,725 on trains drawn by the largest steam engines as compared with 4,279 on Diesel powered trains. Availability figures were not kept for steam locomotives, but the records show that during the first eight months of 1945 the Diesels were in service 56.41 per cent of the time, moving to and from servicing points and awaiting tonnage 20.69 per cent of the time, and out of service for repairs, servicing and other factors chargeable to mechanical delay 22.90 per cent of the time.

Burning Coal in Locomotives

Some weaknesses in present performance due to high combustion rates — The selection of coal to suit the unfavorable conditions in the firebox suggested

By A. A. RAYMOND

Superintendent Fuel and Locomotive Performance, New York Central

THE paramount questions in railroad locomotive use are speed, reliability and cost. Speed and reliability, of course, are very close together because guaranteed on-time performance cannot be obtained unless there is maximum reliability of the propelling unit. Cost is to a considerable extent a secondary item because movement is what the railroads have to sell and the cost is such as is required to produce the movement at the highest practical speed and with the greatest reliability.

Three kinds of conditions which interfere with reliable performance must, in the long run, be overcome if the coal-burning locomotive is to maintain its present standing:

1—Difficulties interfering with long-distance, uninterrupted operation of coal-burning locomotives at high capacity.

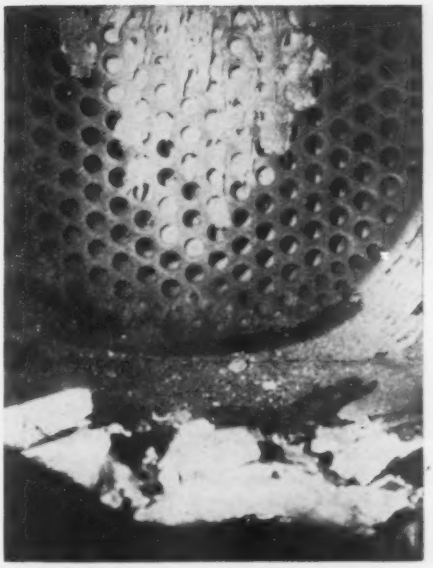
2—The mechanical size of coal as it is placed in the firebox. Experiments have been made for reducing the carbon loss at high firing rates and ways have been studied of increasing the output of the boiler by careful coal sizing or changes in firebox design.

3—There is a possibility of increasing the reliability of the locomotive (returning to the old adage of "not carrying all your eggs in one basket") by having individual axles driven by separate sets of cylinders and valve gears so that if for any reason one set fails, the locomotive can continue through to a terminal with only a few minutes' delay. Now, the failure of side rods or valve motion means either a long delay until the locomotive can be replaced by a locomotive from a division terminal, or placing relief locomotives along the line of railroads.

This is an abstract of a paper presented on November 28, 1945, at a session of the annual meeting of the American Society of Mechanical Engineers sponsored jointly by the Railroad and Fuels Divisions.

Firebox a Cause of Stops

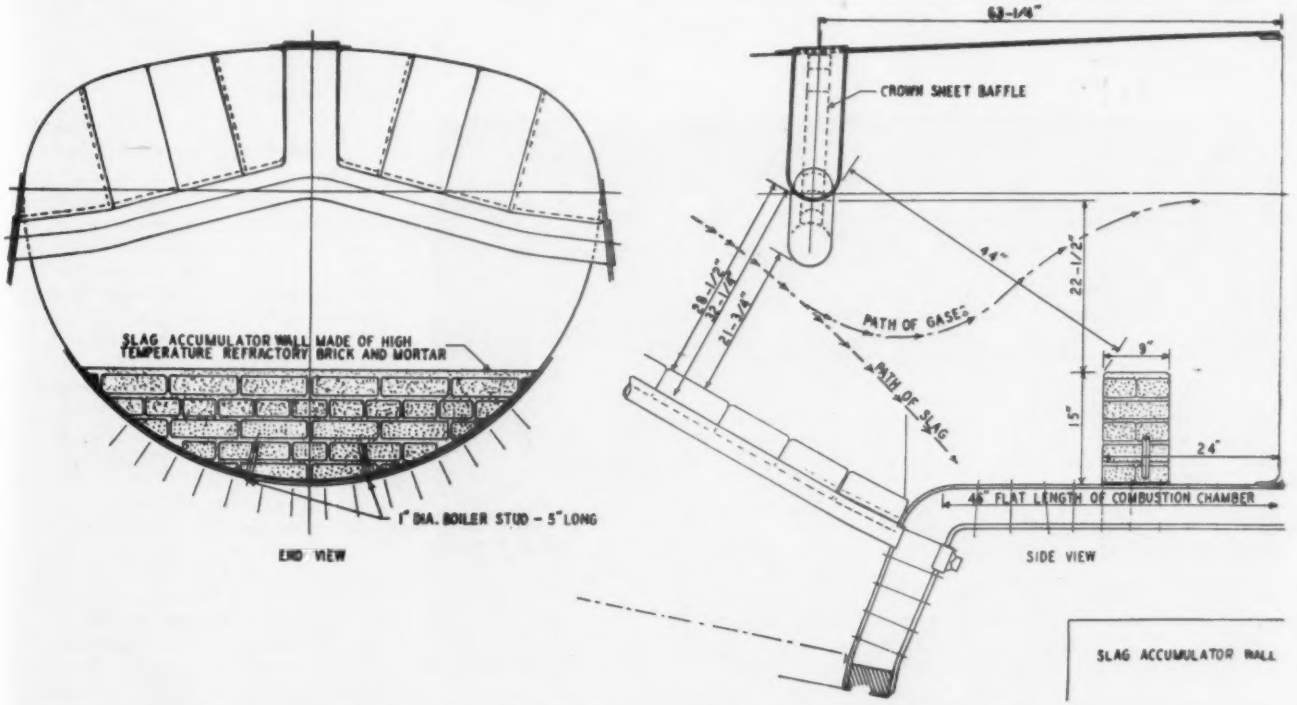
Many improvements have been made in the service rendered by locomotives. Water conditioning, for instance, has made it possible to operate locomotives many days without washing boilers. Welding has eliminated much flue trouble. Now trouble in keeping slag off the flue sheets and out of the flues appears to be one of the limiting factors.



A Typical Case of a Slagged Flue Sheet after an Extended Run

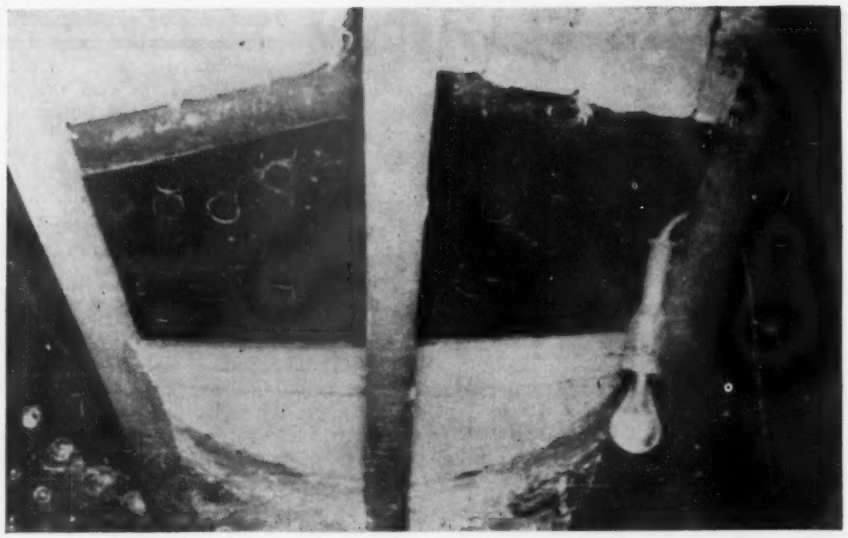
Very careful and detailed studies have been made of the plugging of flues and slagging of flue sheets and it was found that if locomotives were operated at only moderate capacity serious troubles did not develop, but that when locomotives were operated over long distance at maximum capacities this slagging began to develop. This meant finally taking the engine out of service, dumping the fire and putting someone in the firebox to clean off the flue sheets and clean the deposits out of the flues.

Analysis of the material found on the



How the Baffle Walls Are Placed in the Firebox

flue sheets and in the flues indicated definitely that various combinations of iron and carbon caused the trouble and as they more and more interfered with flame travel they insulated the firebox sheets, causing the area of such trouble to increase more and more rapidly. That is, if 15 or 20 flues were plugged, the area might not cause of itself serious steaming troubles, but such an area meant a rapid increase of the hot place in the firebox until the plugged area covered a considerable portion of the flue sheet. Investigation developed that this iron material was heavy and that if it could be diverted out of the stream of the gases and led into an area of less velocity of flame travel, it could be trapped. Various deflectors and traps were arranged. The most effective is shown in two of the illustrations. This is a baffle arch of regular arch brick supported by water-filled tubes and the direction of the heavy particles of iron slag is indicated. It was necessary to erect a brick wall in the bottom of the combustion chamber to make a "settling basin" to hold the diverted slag. Such a baffle improves both the efficiency of evaporation and the total evaporation of the firebox.



Brick Crown-Sheet Baffle in Place (above) and the Trap Baffle Wall (below)

Trapping the Iron

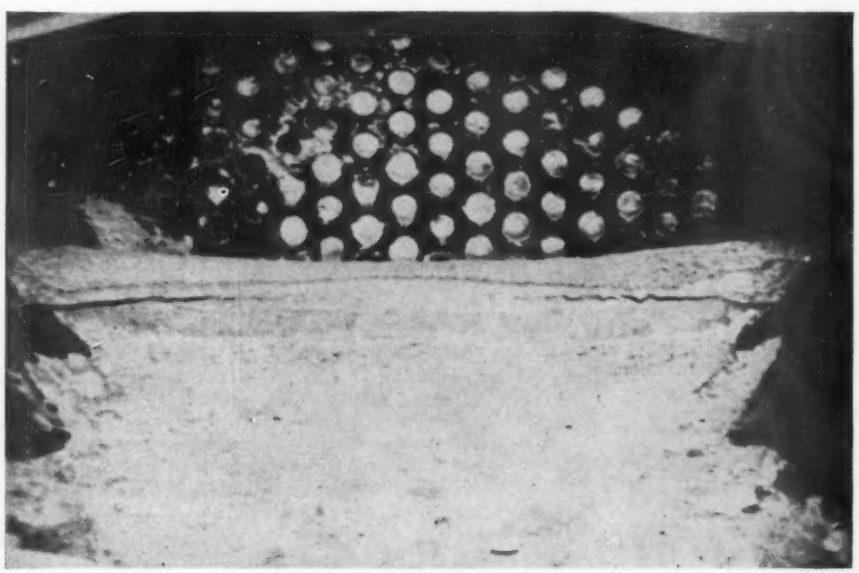
One railroad built 2-8-8-4 and 4-6-6-4 locomotives * with doors on each side of the firebox back of a Gaines wall, with a folding step on the outside of the boiler for easy access. The fireboxes are 266 in. long and 114 in. wide; the grate is 229¼ in. long. This road was starting to use a low B.t.u. coal and there was doubt about what fire conditions might develop, particularly how to get a rake long enough to reach the flue sheet. Through such a door the slag material could be successfully removed in a short time without taking the unit out of service, as would be necessary if the fire were dumped and the firebox cooled off so that a man could work in it.

Difficulty developed with the trapping device because it filled up. Further material would then pass over the full trap, slagged the sheets and plugged flues practically as it did without the deflector. It is thus evident that enlarging or currently draining the trap is necessary to the successful operation of the device. If effectively drained, a smaller trap would suffice. Experience shows that the iron in this trap is molten at high furnace output, but rapidly cools when the throttle is eased off or particularly when attempt is made to drain it. To meet this condition large pipes were put in the bottom of the combustion chamber to carry this material down into an air-tight box. The iron deposit cooled so rapidly, however, that it was found impossible to get it to flow into the box.

Lacking an effective drain, cleaning this material out of the combustion chamber is quite a job. It is necessary to put a man in the firebox and break it up, oftentimes with a sledge. If some means are not developed for continuous draining, another approach might be to provide a door in this side of the combustion chamber, such as has been built in several locomotives with large grate area.

It seems proper to conclude that the iron content in coal ash prevents continuous capacity operation of the present locomotive firebox, that this iron can be taken out of the stream of gases in the firebox by baffles, that such baffling devices have increased the evaporative power of the coal, and that the present problem is the same as in stationary powered fuel furnaces—disposing of this material without undue hardship after it has been trapped.

* These locomotives were described, respectively, in the December 29, 1928 (page 1295) and the March 6, 1937 (page 389) issues of the *Railway Age*.



The Trap Filled with Slag—This Condition and a Brick Out of the Baffle Arch Caused a Progressive Slagging and Plugging of the Flues

Effective Sizes of Coal

What sizes of coal can most effectively be used in present and proposed locomotives? At high firing rates greater evaporation and capacity is obtained per pound of coal with egg sizes than with run-of-mine. Where coal is friable, it has been found that evaporation, both maximum and per pound of coal, can be materially increased by briquetting the coal. These facts indicate the value of having coal in the firebox that will not be carried away in substantial quantities by the intense draft. The consideration of coal of egg size, of course, brings up the question of the availability of such coal at the mines. Of necessity, there would be a smaller amount of egg size than there would be of any other size and if the lump is crushed to make more egg, that crushing will produce additional fines, so that possibly the amount of egg in a ton of fairly hard-structure coal would be considerably less than half of the output of the mine. Crushing

lump to increase egg output leaves the mine with a substantial amount of slack, even with a hard-structure coal. With a soft-structure coal the problem is very difficult.

There is the possibility of briquetting the fines and thus increasing the output of the mines and making a friable coal or fines into an egg hard enough to stand normal handling from the mine through the coal dock and the stoker to the firebox. The increases in evaporation per pound, and particularly the increase in the total evaporation of a firebox, makes this doubly attractive.

Handling of coal through coal docks and through stoker conveyors should be carefully analyzed to produce the least possible breakage. Surprising figures are sometimes found in checking the breakage at these two points.

On the other hand, there is the possibility of powdered fuel or of the centrifugal furnace design which burns, not powdered fuel, but small sizes of fuel. These are the sizes of which the mines have large quantities available. The centrifugal furnace has proved effective and economical in stationary practice. It is believed to have considerable possibilities for locomotives. The coal doesn't have to be powdered and, therefore, the grinding machinery would be much simpler and more economical. It will materially reduce carbon loss and will take the iron compounds out of the flow of gas and consume more fine materials so as to prevent slagging of flues and flue sheets and the resulting loss of service of the locomotive while this slag is being cleaned up.

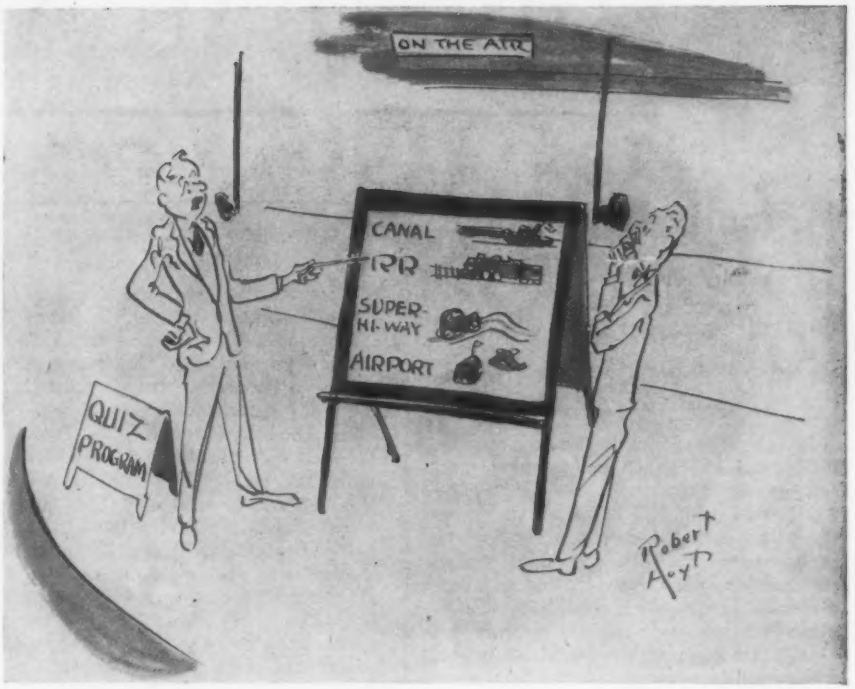
Grates

Maintenance of a thin locomotive fire at the high capacities is suggested. On the road this requires a fire not over 8 in., preferably less than 6 in. thick. After burning 13 to 14 tons the ash begins to interfere with combustion. Moving grates at high evaporation rates affects the rate of evaporation and maintaining this thin but essential fire is a difficult problem. Grates of present design have to be tipped to a very considerable angle to get any material to slide off them and then good coal goes with the ash and slag that we are trying to get rid of. Development might well be carried on along the line of a grate that will grind off the bottom of a fire without disturbing the general surface level.

Possible Objections

Objections will at once be raised that a rotary grate or something of that nature will make it impossible to dump the fire rapidly or to get rid of a piece of arch brick or large clinker. It is believed that a grate can be developed that can be cleaned readily at the enginehouse without the materials going through the grates themselves; possibly by having an opening at the side of the firebox such as was mentioned above, through which a mechanical hoe or something of that nature can be inserted to pull out everything that is on top of the grates in a few motions and thus materially reduce the 20 to 30 min. that is now frequently taken in cleaning or dumping fires of engines arriving at ashpits. The job should be set up to take not over 10 min.

A Question to Stump the Experts



Why Should Property Taxes Be Levied on Only One of These Four Types of Transportation Plant?

* * * *

Lea Warns N. I. T. L.

(*Continued from page 933*)

shortage, the committee reported, recent reports from the Association of American Railroads showed indications of some relief from inconvenience and congestion next year. This is expected to be brought about by the increasing use of troop sleepers by the armed forces plus the speeded up manufacture of regular passenger cars.

Repeal of the transportation tax of 3 per cent on freight rates was recommended by the legislative committee on the grounds that this tax was not enacted with any expiration date such as were some of the excise taxes scheduled to expire six months after the emergency was declared ended. The report declared that this tax "in effect and application has amounted to an excise tax or even a nuisance tax, and the procedure set up for its collection has been very onerous to the railroads as well as those required to pay the tax."

The League adopted a resolution favoring the transfer of all economic regulation of domestic airlines to the I. C. C. to bring all types of interstate transportation under the jurisdiction of a single federal agency. The League also voted to oppose joint through rates between motor common carriers and regulated freight forwarders.

File Pullman Briefs

(*Continued from page 935*)

group "inseparably tied in with the control and management of the Pullman-Standard Car Manufacturing Company"; states that the "Pennsylvania and New York Central would have under the offer of the railroad group de facto control of the Pullman Company through distribution of the stock as provided in said offer"; finds the control and management of Standard Steel Spring Company "inseparably tied in with the control and management of the Pullman-Standard Car Manufacturing Company"; and the Glore-Forgan offer "a tentative proposal to broker the sale of the stock of the Pullman Company to the public, with no commitment as to compliance with any of the requirement of the court's decree, and may well be the means of restoring control to those now in control."

Favors "Abundance"

The issue before the court, it remarks in summary, is "between abundance and scarcity, between competition and an unjustifiable merger, between expanding passenger travel and repetition of the restrictive habits of the past," urging that the Otis offer is "the only offer that meets this issue, the terms of the decree and the letter and spirit of the Sherman Anti-trust Act."

The brief was signed by Thurman Arnold and Arne C. Wiprud, attorneys for the petitioner.

GENERAL NEWS

10 Months Net Income Was $474,000,000

Net railway operating income for the same period was $821,351,024

Class I railroads in the first 10 months of this year had an estimated net income, after interest and rentals, of $474,000,000, as compared with $562,837,263 in the corresponding period of 1934, according to the Bureau of Railway Economics of the Association of American Railroads. The 10-months net railway operating income, before interest and rentals, was $821,351,024, compared with $941,754,226 in the same period last year.

October's estimated net income was $21,000,000, compared with $59,821,849 in October, 1944; while the net railway operating income for that month was $54,438,933, compared with $97,815,539. In the 12 months ended with October, the rate of return averaged 3.52 per cent, compared with 4 per cent for the 12 months ended October 31, 1944.

[While the A.A.R. press release made no reference to the matter, the Interstate Commerce Commission's advance summary of revenues, expenses, and net railway operating income for October includes a footnote saying: "A number of the carriers included in their October accounts charges to operating expenses and credits to tax accruals as a result of the shortened period of amortization of defense projects. This adversely affects their operating ratios. As noted in the *Railway Age* of November 17, page 837, the latest issue of "Monthly Comment on Transportation Statistics, published by the commission's Bureau of Transport Economics and Statistics, called attention to the fact that this amortization speed-up was first reflected in the September accounts, and added that reported operating results for this year's last four months will not be directly comparable with those of corresponding period in prior years.]

Operating revenues for October totaled $696,991,354, compared with $818,302,899 in October, 1944, while operating expenses totaled $626,652,360, compared with $538,959,591. Gross in the 10 month totaled $7,627,386,401 compared with $7,898,825,073 in the same period of 1944, or a decrease of 3.4 per cent. Operating expenses amounted to $5,539,872,020 compared with $5,201,547,093, an increase of 6.5 per cent.

Class I roads in the ten months accrued $1,116,083,915 in taxes compared with $1,587,279,088 in the same period in 1944. Nineteen Class I roads failed to earn interest and rentals in the ten months, of which nine were in the Eastern district, one in the Southern region, and nine in the Western district.

Class I roads in the Eastern district in the ten months had an estimated net income of $186,000,000 compared with $241,049,817 in the same period of 1944. For October, they had a deficit estimated at $4,000,000, compared with a net income of $23,256,986 in October, 1944. The ten-months net railway operating income in the Eastern district was $334,645,591 compared with $398,239,899 in the same period of 1944. The net railway operating income in October amounted to $9,321,645 compared with $39,775,798 in October, 1944.

Gross in the Eastern district in the ten months totaled $3,204,001,014 a decrease of 6.9 per cent compared with the same period of 1944, while operating expenses totaled $2,484,055,616, an increase of 3.3 per cent.

Class I roads in the Southern region in the ten months had an estimated net income of $67,000,000 compared with $85,536,595 in the same period of 1944. For October, they had an estimated net income of $5,000,000 compared with $6,369,123 in October, 1944.

Those same roads in the ten months had a net railway operating income of $118,939,531 compared with $138,986,499 in the same period of 1944. Their net railway operating income in October amounted

(*Continued on page 948*)

Dixie Loses Last Cause for Complaint

Now that "freight rate discrimination" has been scotched, the South "is getting a little short of excuses" for not prospering to the extent it deems appropriate to its merits. Thus distinguished Southerner Jonathan Daniels writes in John Temple Graves' column in the Birmingham Age-Herald (which is being distributed in reprint form by Alvin Vogtle of the De Bardeleben Coal Corporation, Birmingham).

"The war (meaning *the* war) is 80 years behind us," says Mr. Daniels. "If tariffs are still a problem, they are difficult to use as a stirring subject of Southern conversation." Pensions for Yankee soldiers are no longer a cause for legitimate complaint; and the Negroes are "trekking off" to the North. And, finally, the freight rate issue has been ruled on by the I. C. C. to Dixie's liking.

"We may soon be in the disturbing situation of having nothing at hand to explain our difficulties but ourselves," Mr. Daniels concludes.

Seek Injunction in Class Rate Order

Nine eastern states object to paying more in order to bring "parity"

On November 29 Nathaniel L. Goldstein, Attorney General of New York State, announced that a petition had been filed in the United States District Court at Utica, N. Y., by the states of New York, Delaware, Indiana, Maryland, Michigan, New Jersey, Ohio, Wisconsin, and Pennsylvania seeking an injunction against the Interstate Commerce Commission's May 15 report and order requiring uniform freight classification throughout the country and an initial step toward class rate uniformity in all territories except the Mountain-Pacific (I. C. C. Docket Nos. 28300 and 28310). The filing of the suit followed denial by the I. C. C. of numerous petitions for the reopening of this case (*Railway Age*, November 10, page 762).

District Judges John C. Knox and Stephan W. Brennan, and Circuit Judge Harrie B. Chase compose the three-judge court which will hold a hearing on the prayer for an interlocutory injunction on December 13 at New York.

In support of their petition the plaintiffs offered 50 pages of evidence and argument in attempt to demonstrate that the I. C. C.'s report and order of May 15 were "unlawful, beyond the power of the Commission, arbitrary, capricious, unsupported by essential findings, [and] contrary to and without support in the evidence."

The petition cited evidence, quotations, and other data taken directly from the Commission's report.

The petitioners laid great stress on their allegation that political pressure, rather than sound analysis and fair hearing of evidence has been the motivating force behind the disputed order. To this effect they quoted the late Commissioner Eastman as saying in another case that:

"The Commission is called upon to decide this case on the record, after it has in effect been decided, in advance and without regard to the record, by many men in public life, of high and low degree, who have freely proclaimed their views on what they conceive to be the basic issues. Their thesis has been that the section of our country generally known as the South is our 'Economic Problem No. 1,' because, among other things, it is low in industrial development, and that a major reason for this condition has been and is an unfair adjustment of freight rates which has favored the producers of

the North and burdened those of the South . . ."

The petitioners further insist that in hearings conducted in Official territory, to which all interested parties were invited, no evidence was offered to support a rise in Eastern class rates. The only complaining witnesses mentioned were trucking interests, who claimed that l. c. l. rates were so low as to make truck competition impossible. Spokesmen of the Southern and Southwestern interests were reported in opposition to an increase in Eastern class rates as a means to achieving uniformity.

In refutation of the I. C. C. finding (in its report of May 15) that the disparity in class rates between Official and Southern territories has been an unfair handicap to Southern industry the plaintiffs claim that this is compensated for to a certain extent by the more generous exception and commodity rates granted the southerners. The petition quoted several pages of the Commission's report dealing with southern shippers in an attempt to show that they were competing successfully in northern markets, even with l. c. l. shipments. The report stated that one of the witnesses for the southern interests was the editor of an industrial paper devoted to the south and southwest. This magazine had claimed in 1940 that in two years there had been a 35 per cent increase in southern manufacturing, which then had a volume 2½ times the value of its agricultural output, according to the commission's report.

The petitioners also called attention to the fact that two commissioners filed dissenting reports, and two concurred only in part with the report and order of May 15. They quoted Commissioner Porter's conclusion that:

"In my opinion, the record falls far short of supporting the finding that to be just and reasonable, and free from undue prejudice and preference, the class rates throughout the area east of the Rocky mountains must be placed in the straightjacket of a uniform distance scale."

The petition summarized its main assertions, in substance, as follows:

The Commissions order was based on "incorrect discussions and conclusions of law, incorrect and unjustified preliminary findings of fact and analyses of the evidence and reflect bias and prejudgment in their approach to the issue" (implicit cause: fear of Congressional action).

Allegations of injustice in class rates are unfounded, for lack of evidence to show interference with free movement of trade, industrial development of the south, or a parity in freight transportation costs between the areas under discussion.

It is an injustice to Official Territory shippers to demand parity in class rates and continue present disparity in exception and commodity rates.

Claims that Official Territory class rates are substandard, and that all class rate traffic is sufficiently parallel to justify uniform rates are an unexplained reversal of previous opinions of the Commission.

The Commission acted arbitrarily and unjustly in denying, on October 30, all petitions for further hearings.

The order will be detrimental to Official Territory trade, and will force competition with equal class rates but lower exception and commodity rates in the South.

* * *

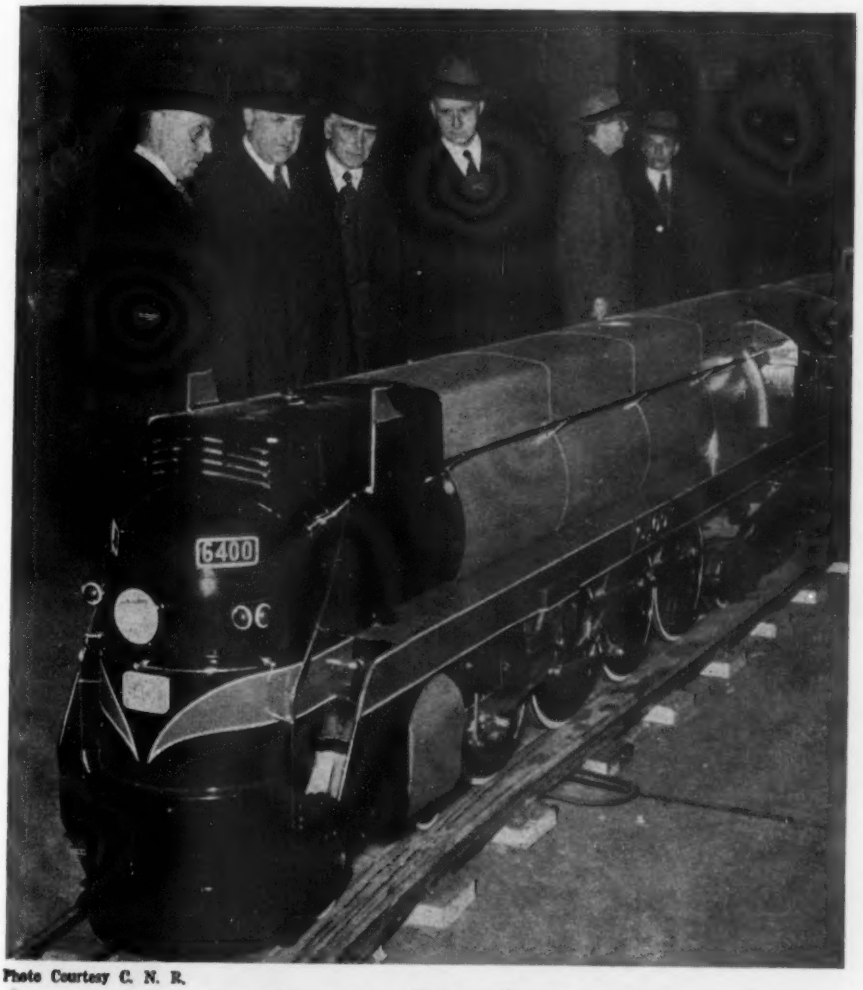


Photo Courtesy C. N. R.

C. N. R. Officers View Minature 4-8-4 Streamliner

Built in the Canadian National's shops at Point St. Charles for a department store Christmas display in Toronto, the "Continental Limited" locomotive here shown is a fifth of the size of the railway's big 4-8-4 and is powered by electricity instead of steam. It hauls four cars; is 47 ft. long. Engine and tender measure 18 ft. 4 in., and the engine is 36½ in. high, 26 in. wide. The eight driving wheels are 15½ in. in diameter. Except for the wooden car bodies and the underframes of the last three cars, the train is all metal. Locomotive and cars are green with gold striping, and the engine is equipped with a gong, air-operated chime whistle, electric headlight, number and classification lamps. Appearing in the picture are (left to right); A. C. Melanson, works manager; R. C. Vaughan, chairman and president, C. N. R. system; N. B. Walton, executive vice-president; E. R. Battley, chief of motive power and car equipment; Jack Brockie, supervisor of merchandise display, T. Easton Co., Toronto; and Emile Lemieux, of Eaton's in Montreal.

October Earnings in Canada

The two principal Canadian railways reported October earnings and expenses as follows:

Canadian National

October	1945	Increase
Gross	$36,631,000	$865,000†
Expenses	31,205,000	1,119,000†
Operating Net*	$5,426,000	$254,000
10 Months		
Gross	$363,951,000	$1,693,000†
Expenses	296,452,000	2,809,000†
Operating Net*	$67,499,000	$1,116,000

Canadian Pacific

October		
Gross	$28,646,295	$485,604
Expenses	23,776,756	374,595
Net*	$4,869,539	$888,991†
10 Months		
Gross	$265,326,603	$787,069†
Expenses	235,813,748	2,079,727
Net*	$29,512,855	$2,866,796†

* Net as shown in this tabulation, for the C. N. R., is equivalent to "Net Operating Revenue" in U. S. accounting terminology, while the net shown for the C. P. R. corresponds to "Net Railway Operating Income" in U. S. terms.
† Decrease.

War Artists Record N.Y.C. Railroaders "Out on the Line"

Two noted war artists—Joseph Hirsch and Carol Johnson—have made a series of sketches of New York Central railroaders at work. These drawings have been incorporated in a 24-page two-color booklet, entitled "Out on the Line," and are now available for distribution by the New York Central.

The booklet is divided into five sections. Carol Johnson, who covered North Africa as illustrator for the late Ernie Pyle, has sketched the track men at various tasks—pulling spikes, bolting end rails, operating the adzing machine and such like. He has done a chapter called "Your Electric Guardians," having visited roundhouses, and

climbed into engine cabs and ridden with signal maintenance crews on winter patrol to learn about the Central's automatic block signals and train control. "Always Something New for You" describes Mr. Johnson's experience prowling through a busy N. Y. C. yard, where he observed a locomotive moving under radioed orders.

Mr. Hirsch, whose war paintings recently were shown at Corcoran Galleries, in Washington, draws "The Trains You Take," which reveals the baggage man at work, the conductor at his bookkeeping, a brakeman adjusting a seat back for a first-time traveler, a dining car chef on the job, and various others.

His second section "Your No. 1 Supply Line" bears such subject-matter as railroad wigwag, conductor at caboose table writing up his wheel report, caboose cookery, etc.

Faster B. & O. Schedules

On December 4 the Baltimore & Ohio established new and faster schedules for nearly all through B. & O. passenger trains. The schedules provide more convenient timing at the road's important terminals, and better connections with other lines. Both the "Columbian" and the "Capitol Limited" had had their running time reduced by 25 minutes. The running time of train No. 10 has been reduced by 35 minutes. These savings are typical of others effected on all major B. & O. train schedules.

Legion of Merit Is Awarded Antwerp Port Commander

Col. Curtis A. Noble, of White Plains, N. Y., was awarded the Legion of Merit for outstanding service as port commander and later as deputy port commander of Antwerp, Belgium, 13th major port, U. S. Army Transportation Corps, and key supply port for the Ruhr and Rhine offensives.

According to his citation, covering the period from September 26, 1944, to May 8, 1945. "Colonel Noble conducted the preliminary reconnaissance of the port . . . , directed rehabilitation work which fitted the port for use of the invading armies, and maintained it so that allied forces on the European continent engaged with the enemy were assured of a constant flow of vital supplies."

During the six-month period from October, 1944, through March, 1945, while port troops in Antwerp were under constant enemy air and V-bomb attack, 2,000,000 tons of supplies were unloaded and dispatched to four allied armies advancing into Germany.

Baldwin Delivers 3,000-Hp. Diesel to Seaboard

The Eddystone, Pa., plant of the Baldwin Locomotive Works was the scene of ceremonies on December 2, at which the Seaboard's new 3,000-hp. Diesel-electric locomotive was christened "The Railmaster" and the locomotive was accepted by L. R. Powell, Jr., co-receiver for the road, from Ralph Kelly, president of Baldwin.

This is the most powerful single-cab-unit locomotive to be built to date, having two 1,500-hp. supercharged Diesel engines in one unit. While the locomotive is designed for a top speed of 120 m.p.h., the speed restriction is 85 m.p.h. It will be used for hauling the Seaboard's fast freight trains of perishables to northern markets.

The wheel arrangement is 4-8-8-4, with the 4-wheel trucks as guiding trucks. The driving trucks, two 8-wheel articulated trucks, have traction motors on all eight axles. The driving wheels are 40 in. in diameter. The light weight of the locomotive is 522,500 lb.; and, with 3,500 gal. of fuel oil, 300 gal. of lubricating oil, 600 gal. of engine cooling water, and 2,500 gal. of boiler feedwater for the train heating boiler, the working order weight is 577,200 lb. Of this, 410,000 lb. is carried on the driving wheels with a loading of 51,250 lb. per axle.

The total wheelbase of the locomotive is 77 ft. 10 in., with a total length inside knuckles of 91 ft. 6 in. The starting tractive force is 120,000 lb., at 30 per cent adhesion. The locomotive is designed with controls at one end, the opposite end being equipped for coupling, with the conventional diaphragm arrangement.

Railroads Get Delay in Answering Government Anti-Trust Suit

Federal Judge John Delehant at Lincoln, Neb., has granted a 90-day extension of time in which 47 railroads, two railway associations, two banking corporations and 31 individuals must answer a bill of particulars recently filed by the government in its suit charging violations of the anti-trust laws. All of the defendants had previously requested a continuance of 120 days, but accepted the compromise offer of the court. As a result, March 3 has been set as the date for the hearing.

The suit, which has been hanging fire for some time, received another setback on September 27 when attorneys representing the defendants introduced a motion demanding that the Department of Justice, which is prosecuting the case on behalf of the government, file a bill of particulars, especially in reference to federal allegations of conspiracy. This bill was filed on October 22 and the defendants were given until December 3 to answer. On the latter date the defense requested Judge Delehant to grant the 120-day extension which was denied and the 90-day delay allowed.

Fairbairn Awarded Kennedy Medal for 1945

J. M. R. Fairbairn, retired chief engineer of the Canadian Pacific, has been awarded the Sir John Kennedy Medal for 1945 by the Engineering Institute of Canada, "in recognition of outstanding merit in the engineering profession." The award commemorates the services rendered to the development of Canada, engineering science and the profession by the late Sir John Kennedy, a past president of the Engineering Institute of Canada.

Mr. Fairbairn served 21 years as chief engineer of the C. P. R., retiring in 1939. Two years later he became director of works and buildings for the Department of National Defense, Naval Affairs, at Ottawa, Ont., retiring from that position in 1942. During his career, he has served as president and a member of the council of the Engineering Institute of Canada, also as a director of the American Railway Engineering Association, and as a member of the Institute of Engineers of Great Britain and the American Society of Engineers.

Innovation in Ticket Selling Announced by Southern

Following brief displays in Washington, D. C., and Atlanta, Ga., the Southern Railway has placed in service in its ticket office at Greensboro, N. C., a newly-developed railroad ticket-selling machine, resembling a cash register. Built for hard use, the railroad predicts the machine will "speed up, simplify and practically revolutionize sales and accounting work."

The idea for the mechanical ticket seller originated in the accounting department at Washington some years ago, and claimed "impossible" by many, it was developed by the National Cash Register Company after five years of experimental work.

Prints Railroad Tickets While You Wait

At the Washington demonstration of the new machine were: T. H. Seay, Southern comptroller (at left); Selma Norsworthy, ticket clerk; and Frank L. Jenkins, general passenger traffic manager

Its operation is simple. When a customer wants a railroad ticket to any of a hundred or more destinations, the seller has merely to press several buttons and out will come a ticket imprinted with destination and origin points, fare, government tax, and similar data. Simultaneously, the machine accounts for the money and records by whom the sale was made, so that at the end of the day a push on a button will record sales for each ticket seller and total sales for the entire office.

Freight Car Loadings

Loadings of revenue freight for the week ended December 1 totaled 803,770 cars, the Association of American Railroads announced on December 6. This was an increase of 87,276 cars or 12.2 per cent above the preceding week (which included the Thanksgiving holiday), a decrease of 4,066 cars or 0.5 per cent below the corresponding week last year, and a decrease of 58,963 cars or 6.8 per cent below the comparable 1943 week.

Loading of revenue freight for the week ended November 24 totaled 716,494 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, November 24

District	1945	1944	1943
Eastern	134,660	144,945	154,663
Allegheny	154,792	168,469	181,070
Pocahontas	46,679	52,848	58,075
Southern	113,829	118,789	119,332
Northwestern	87,149	83,114	109,469
Central Western	119,221	128,212	122,789
Southwestern	60,164	71,961	74,434
Total Western Districts	266,534	283,287	306,692
Total All Roads	716,494	768,338	819,832
Commodities			
Grain and grain products	50,773	45,578	50,831
Live stock	21,386	21,095	16,037
Coal	151,285	161,935	181,824
Coke	12,677	13,381	15,261
Forest products	27,867	37,678	41,927
Ore	21,852	18,871	49,653
Merchandise l.c.l.	106,213	98,511	96,124
Miscellaneous	324,441	371,289	368,175
November 24	716,494	768,338	819,832
November 17	800,361	863,992	882,287
November 10	838,218	839,504	847,972
November 3	851,962	893,069	754,739
October 27	854,779	916,485	883,727
Cumulative Total, 47 Weeks	38,354,861	39,709,213	38,710,546

In Canada.—Carloadings for the week ended November 24 totaled 72,644 as compared with 74,092 for the previous week and 77,771 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
November 24, 1945	72,644	32,526
November 25, 1944	77,771	39,432
Cumulative Totals for Canada:		
November 24, 1945	3,291,538	1,643,994
November 25, 1944	3,337,809	1,809,765

October Truck Traffic

Motor carriers reporting to American Trucking Associations, Inc., transported in October 1,880,181 tons of freight, an increase of 11.5 per cent above the 1,686,583 tons transported in September but a decrease of 5.7 per cent below the October, 1944, total of 1,993,587 tons. The A. T. A. index number, based on the 1938-1940 average monthly tonnage of the reporting carriers, was 182.4 for October.

The foregoing figures, according to the A. T. A. statement, are based on reports from 229 carriers in 37 states. Truckers in the Eastern district reported a tonnage increase of 11.5 per cent above September, but a decrease of 8.6 per cent below October, 1944. In the Southern region the increase above September was 12 per cent, and the decrease below October, 1944, was 2.2 per cent; while the respective figures for the Western district were an increase of 11.3 per cent and a decrease of one per cent.

Railroad Books Suggested as Xmas Gifts for Children

A recent canvass conducted by the Association of American Railroads reveals that there are more than forty illustrated children's books about locomotives and trains on the market for the Christmas shopping season.

The list compiled by the A. A. R. does not lack variety. Some books run largely to pictures, and thus appeal to children of all ages; some are designed for instruction, as well as entertainment, helping to acquaint the child with the different kinds of passenger and freight cars and the different parts of locomotives. Others, designed for no other purpose than to entertain, spin tales on the loom of fantasy—exotic tales as imaginative as any to be found in "Alice in Wonderland" or "Anderson's Fairy Tales."

Pictorially and in prose or verse, they take the reader on exciting excursions, sometimes accompanied by the most extraordinary companions, into the "Land of Make-Believe," where strange adventures await the travelers—fantastic tales that grown-ups, as well as children, adore and find pleasure in reading over and over again.

The list, copies of which are available from the Association's headquarters in the Transportation Building, Washington 6, D. C., includes books which are of special interest to children ranging from three to thirteen years of age. Nearly all of them are profusely illustrated and most of them are attractively printed in colors.

"Worst Ever," Pelley Says of Passenger Situation

"The passenger situation is the worst it has ever been," J. J. Pelley, president of the Association of American Railroads, declared at an interview in Chicago on November 30, following the annual meeting of the Association. Continuing he said, "A lot of people are not going to be able to get on our trains for the next 60 to 90 days or so."

Explaining the reasons for his statements, Mr. Pelley said that the problem of handling 1,200,000 service personnel who will arrive in the United States during December when the normal Christmas traffic is under way was the primary matter discussed by the membership. Some 530,000 of these men will come through Pacific coast ports, nearly nine-tenths of whom require long journeys to reach their homes. "As far as possible," he said, "sleeping cars are provided for long journeys, but it is not always possible, even with nearly three-fourths of all the sleeping car space assigned to this service."

"In addition to sleeping cars, more and more coaches are being withdrawn from regular train service for troop movements. Just today, the western railroads alone took steps to withdraw another 368 coaches for that purpose. Equipment from all over the United States is sent west empty to expedite the troop service, but despite all efforts there are now 40,000 men on the Pacific coast awaiting transportation east." Mr. Pelley further explained that there was on that day sufficient equipment en route from the east to break that bottleneck.

He also advised that movement of returning service men was about three to four days behind in the San Francisco-Oakland Bay area, two days behind at Seattle, and current at other ports.

The situation was due, he explained, to the fact that during four years other war needs made it impossible to get new passenger equipment and there has not yet been time since the close of the war to build additional cars. Although 1,200 new troop

sleeper and 400 troop kitchen cars had been ordered last spring very few of these cars were yet in service due to strikes at plants producing essential parts for the cars, the principal delay being in the furnishing of beds.

To break this jam, 600 car sets of army cots have been secured and are being installed at the rate of 15 cars per day in the 350 otherwise completed cars. He also revealed that on November 30 the difficulties which had been preventing the manufacture of regular berths for these cars had been disposed of and production was being resumed. Of the 400 troop kitchen cars ordered last spring 138 are in service, he said, with additional cars being placed in service at the rate of 7 per day.

Concluding his statement, Mr. Pelley said: "The railroads will have to do the best they can with the cars they have to handle the peak holiday travel just ahead of us, but their first obligation is to get these service men home as promptly and as comfortably as circumstances permit. It is a matter of grave concern and real regret that all travel cannot be handled satisfactorily, but the railroads can only do the best they can to meet essential needs."

At the business meeting of the Association all officers and directors were re-elected to serve during 1946, except that Ralph Budd, president of the Chicago, Burlington & Quincy, was elected a director, succeeding Charles E. Denney, president of the Northern Pacific.

Reading Starts Train Communication Tests

The Reading has initiated comprehensive tests of very high frequency railroad radio communication systems at its Wayne Junction yard, Philadelphia, Pa. The tests will be continued over a period of three months. The Wayne Junction yard was chosen for the tests because its maze of catenary structures, steel buildings and tracks converging at various elevations presents numerous obstacles to radio communication.

In the initial tests, two-way conversations were conducted between the main station in the Wayne Junction yardmaster's office and three Diesel-electric locomotives moving about the yard. The yardmaster's office at Nicetown Junction, Pa., was also included in the communication.

A 25-watt transmitter is used in the Wayne Junction yard office, and this is connected by wire with the office at Nicetown Junction. Fifteen-watt battery-powered transmitters are used on the three locomotives, and will be installed on two others. Loudspeakers of a type developed for use on battleships serve both fixed and mobile stations.

A novel feature of the system, undergoing test, is an automatic film type recorder which is started and stopped by a voice-actuated relay and records two-way conversations.

The equipment used has been developed by Maguire Industries, Inc., Bridgeport, Conn. The initial demonstrations were made for N. Newlin Baily, general manager of the Reading, and A. N. Jewell, Philadelphia division superintendent, by L. A. Moll, Reading electronics and communications engineer, and Russell Maguire, president, Maguire Industries, Inc.

Carriers Conference Committees Consider Union Demands

Three conference committees, representing all Class I railroads, have been in session at the Morrison Hotel, Chicago, in a joint meeting with the representatives of railway labor for two weeks. The meeting is considering demands from organizations representing practically all railway employees.

Beginning on June 1, various individual demands were presented by the 15 non-operating unions, but at the meeting these demands have been crystallizd by the non-ops into a request for flat wage increases of 30 cents per hour for members of the organizations, which increases, if granted, would total approximately $1,352 million annually.

At the same time, the committees are also considering the demands of the five operating brotherhoods. In the case of the Brotherhood of Locomotive Firemen & Enginemen, the Switchmen's Union of North America and the Order of Railroad Conductors, the demands are for a wage increase of approximately 25 per cent, but the working rules are not involved. Representatives of the Brotherhood of Railroad Trainmen and the Brotherhood of Locomotive Engineers are also working for a 25 per cent upward revision of the wage scale, but these two brotherhoods have refused to agree to the carriers' suggestion that wage increases only be considered at this meeting, and that their request for changes in working rules be withdrawn. As a result, it is impossible to conduct the sessions jointly, and the carriers' committee meets in rotation with the non-ops, the two brotherhoods which are demanding changes in working rules as well as wage increases, and the three brotherhoods which, while willing to discuss wages only at this time, have not as yet withdrawn their rules requests.

So long, of course, as the operating organizations persist in their demands for rules changes, the 29 rules changes requested by the carriers remain in the picture and will be aired.

Rate Increase Essential, Says Investment Bankers Assn.

A special railway securities committee, of which Fairman R. Dick of New York was chairman, reported to the Investment Bankers Association that a freight rate increase is an absolute necessity if adequate earning power of the railways is to be maintained. The report was submitted before the convention of the I. B. A. in Chicago on November 28.

The necessities for continued improvement in railroad credit were given as follows:

1. A level of net earnings that permits the building up of safety cushions in current assets and makes possible important reductions in debt and fixed charges.

2. The removal of maturity dangers by anticipatory payments or refunding operations.

3. Increasing recognition of the importance of our railroads as "the very backbone of our domestic transportation."

The committee pointed out that the extent of the freight rate increase could not be determined definitely until the present railway wage negotiations are settled and more specific knowledge as to future labor and material costs are available.

The report continued: "Moreover, unfavorable factors affecting future railroad earning power are not limited to declines in traffic, increases in wage rates and the cost of materials and supplies, because war-time earning power reflects abnormally favorable conditions which in all probability will change for the worse in the next 12 months.

"There can be no credit crisis such as occurred in the 1930's because of the unparalleled resources in cash and working capital of practically every railroad. From certain angles, the financial strength of the railways today will tend to delay a sound readjustment because the roads are prepared as never before to live off their fat."

10 Months Net Income Was $474,000,000

(*Continued from page 944*)

to $9,894,330 compared with $12,128,100 in October, 1944.

Operating revenues in the Southern region in the ten months totaled $1,052,821,596 a decrease of 5.4 per cent compared with the same period of 1944, while operating expenses totaled $719,420,909 or an increase of 3.4 per cent.

Class I roads in the Western district in the ten months had an estimated net income of $221,000,000 compared with $236,250,851 in the same period of 1944. For October, they had an estimated net income of $20,000,000 compared with a net income of $30,195,740 in October, 1944.

Those same roads in the ten months had a net railway operating income of $367,765,902 compared with $404,527,828 in the same period of 1944. Their net railway operating income in October amounted to $35,222,958 compared with $45,911,641 in October, 1944.

Operating revenues in the Western district in the ten months totaled $3,370,563,791, an increase of 0.8 per cent compared with the same period of 1944, while operating expenses totaled $2,336,395,495, an increase of 11 per cent.

CLASS I RAILROADS—UNITED STATES

	1945	1944
Month of October		
Total operating revenues	$696,991,354	$818,302,899
Total operating expenses	626,652,360	538,959,591
Operating ratio—per cent	89.91	65.86
Taxes	2,770,348	164,119,470
Net railway operating income (Earnings before charges)	54,438,933	97,815,539
Net income, after charges (estimated)	21,000,000	59,821,849
Ten Months Ended October 31, 1945		
Total operating revenues	$7,627,386,401	$7,898,825,073
Total operating expenses	5,539,872,020	5,201,547,093
Operating ratio—per cent	72.63	65.85
Taxes	1,116,083,915	1,587,279,088
Net railway operating income (Earnings before charges)	821,351,024	941,754,226
Net income, after charges (estimated)	474,000,000	562,837,263

With the Government Agencies

New Transport Head Assumes Command

General Leavey succeeds Gross December 1, after 4 years in Pacific and E.T.O.

Major General Edmond Harrison Leavey, whose appointment as Army chief of transportation was noted in the *Railway Age* of December 1, page 911, came to that assignment after four years of continuous overseas service in both the European and Pacific war theaters. He assumed command of the Transportation Corps on December 1, succeeding Major General Charles P. Gross, who retired to become chairman of New York City's Board of Transportation which operates the city-owned rapid transit system.

General Leavey was born in Longview, Tex., in 1894, and was graduated from West Point in August, 1917. With World War I in progress he rapidly obtained the rank of captain, and served during 1917 and 1918 as instructor at engineer officers training camps. He was transferred to Hawaii for duty with the 3rd Engineers in January, 1919, and he commanded that organization from June, 1919, until March, 1921. He then returned to the United States, and after a two-months assignment to the 8th Engineers at Fort Bliss, Tex., he entered Rensselaer Polytechnic Institute, being graduated from its civil engineering course in June, 1922.

General Leavey next served for four years, until June, 1926, as assistant professor of military science and tactics at the Massachusetts Institute of Technology. He entered the Engineer School, Fort Humphreys, Va., in September, 1926, being graduated in June, 1927, when he went in turn to Fort DuPont, Del., and Camp Perry, Ohio, with the Engineer Rifle Team. He served as assistant to the district engineer at Portland, Ore., from October, 1927, until November, 1929, when he was transferred to Hawaii as assistant department engineer.

Returning to this country in September, 1932, General Leavey served until September, 1935, as chief of the Military Construction Section in the Office of the Chief of Engineers, Washington. He then went to Ocala, Fla., as executive for the district engineer; and in August, 1936, he was transferred to New York as deputy administrator of the Works Progress Administration. In August, 1937, he was detailed to the Command and General Staff School, Fort Leavenworth, Kan., and following his graduation in June, 1938, he returned to the W.P.A. administration in New York. In July, 1940, he was transferred to Washington as assistant commissioner and chief engineer of W.P.A. Six months later he was assigned as chief of the Engineering Branch, Construction Division, in the Offices of the Quartermaster General and Chief of Engineers.

When World War II broke out General Leavey had attained the temporary rank of colonel; his promotion to brigadier general came in April, 1943, and he has held his present rank since February, 1944. About a month after Pearl Harbor, General Leavey became deputy chief of staff of the V Army Corps and was sent to North Ireland as acting chief of staff, U. S. Army Northern Ireland Forces. For his efforts in coordinating the moving, sheltering, training, and warehousing of vast numbers of troops and supplies to Ireland, he was presented the Legion of Merit in 1943.

While in England General Leavey was appointed chief of staff of the Mediterranean Base Section in North Africa in November, 1942, and in February, 1943, he assumed command of that organization. After completion of the Tunisian campaign, General Leavey was transferred to the Pacific, where he was assigned to Admiral Chester W. Nimitz's staff as assistant chief of staff in charge of logistics. He was awarded a Gold Star in lieu of his fourth Legion of Merit for his work on this assignment. From last May until he became chief of transportation, General Leavey was General Douglas MacArthur's deputy commander and chief of staff, in which role he accepted the surrender of Japanese forces in the Philippines.

Maj. Gen. Edmond H. Leavey

War Department Sees Troop-Travel Crisis

Rail service not keeping pace with arrivals at West Coast ports, it says

Making what it called a "progress report on the transportation phase of repatriation," the War Department asserted in a November 30 press release that "the steadily increasing return of troops from the Pacific has begun to exceed the ability of the nation's railroads to keep pace with it." Families of service men were advised not to expect a soldier home "within a few days after he arrives" at a Pacific port, for the backlog of troops waiting for rail transportation at those ports "is mounting daily."

The statement also recalled that when the schedules of debarkation on the West Coast were set up "months ago," the railroads "advised that they could handle the load"; but where Army shipping schedules are being met or bettered, the railroads are experiencing serious difficulties in supplying even coaches in sufficient numbers to move the returning soldiers."

"The rail transportation situation on the West Coast is rapidly reaching an extremely serious state," the report said in another place. "As of November 28, there were in excess of 48,000 troops at ports and disposition centers for whom transportation had been requested. Some of them had waited since November 22 to move East to personnel centers for demobilization or furlough. During the past two months it has not been uncommon for men to wait for two to four days for passenger equipment, despite the fact that railroads receive on the average a week's advance notice of anticipated debarkations. Because congestion on the West Coast is seriously interfering with the flow of troop returns, the War Department is sending troops on long journeys, some of them cross-country, in day coaches. In the week of November 18, 4,123 troops were moved in this manner. A small number of them may have been intercepted and provided with sleeper equipment en route."

Last week, it was stated, the eastern railroads dispatched 375 coaches to the West Coast "in an effort to relieve the critical congestion in the Army's disposition centers." The report also mentioned "labor difficulties" (the strike of Simmons Company employees) which have delayed delivery of berths for the 1,200 troop sleepers expected to be in service at this time; only 39 of the cars are in service.

To get more of these sleepers in service, the Defense Plant Corporation on November 14 contracted with the Banner Bed

Company of Chicago to convert regular Army cots and mattresses for use in the cars, of which 312 have been completed except for the installation of berths. The Army has shipped 18,000 of its standard steel cots and mattresses to the Chicago firm, which will deliver them after conversion to the Pullman-Standard Car Manufacturing Company. While this was called "strictly an expedient," the statement said that 31 cars thus equipped were already in service, 40 more were expected to be delivered next week, and 75 per week thereafter have been promised by the manufacturer. Another move taken by the Army has been the assignment of hospital cars and medical kitchen cars to troop service. Helpful as such measures are, however, it was nevertheless asserted that they "cannot provide enough relief to cope with the rapidly-developing crisis on the West Coast."

The release had previously devoted a paragraph to the plan under which the commercial airlines have been carrying some of the troops on transcontinental journeys in planes provided by the Army Transport Command; and to the prospects for further relief from that source as a result of the Office of Defense Transportation's recent order requiring the airlines to assign 70 per cent of their eastbound space to servicemen. The latter, it is said, will accommodate only about 665 men a day, while the Transport Command planes carried only 3,580 men on eastbound flights during the week of November 18. "Air transport alone," the statement said, "cannot eliminate the backlog which, on November 23, was 25,013, and on November 28, 29,334." The "backlogged" men are those who have been ashore more than 48 hours and whose processing has been accomplished.

The report's figures on arrivals at the ports show that the four-day period, November 24-27, set a new high, with 110,000 debarked from ships at the East Coast and 47,000 at West Coast ports. From November 1 to 27, inclusive, nearly 658,000 troops arrived by ship in this country, 447,022 at Atlantic ports and 210,836 at Pacific ports. Total Army returns in the period from V-E Day through November 27 were 3,095,813, including 2,732,348 by ship and 363,465 by air.

November returns will exceed by about 30,000 the estimate of 697,000 made after V-J Day. December will be the peak month when total returns are expected to be about 760,000, with 384,000 coming into East Coast ports and 376,000 from the Pacific.

Most of the foregoing comment with respect to troop-travel conditions on the railroads was repeated with some additions by the War Department five days later, when it issued a December 5 press release to announce that 32 transports with capacity for 83,000 troops are being transferred from the Atlantic to the Pacific—to give "added impetus to the big push in troop returns from that area already underway."

The new material on railroad travel conditions gave figures for another week (that beginning November 26) on the number of troops making long journeys in day coaches. It was 4,496. It was also asserted that the War Department does not look with favor on the idea of routing some of the ships from the Pacific through the Panama Canal to Gulf of Mexico and East Coast ports. Such a plan, the statement explained, would slow up the return flow of troops because of the longer sea journey.

In addition, the December 5 statement revealed that the railroads were able over the past week-end to reduce "backlogged" personnel at West Coast ports to 11,000—"principally because of a temporary lull in debarkations." The release closed with a "don't travel" appeal, added to that part of the repeated November 30 statement which had advised families of service men not to expect a soldier home within a few days after his arrival at a Pacific port. The appeal said that the War Department had "stressed the point that voluntary reduction in unnecessary civilian travel would go far to relieve the rail transportation crisis and thus permit faster movement of returning troops from ports of debarkation to their demobilization centers and to their homes."

Johnson Too Busy to Take on Full I. C. C. Duties

Addressing the opening session of the annual convention of the National Association of Railroad and Utilities Commissioners this week at Miami Beach, Fla., Director J. Monroe Johnson, of the Office of Defense Transportation, disclosed that he had informed the Interstate Commerce Commission, on December 3, that he would be unable to resume his full duties as a member of the Commission, January 1, 1946, as he has planned. Since the responsibilities of his O.D.T. post still are very heavy, and probably will remain so for several months more, reduction of the O.D.T. organization will proceed about as scheduled, however.

Colonel Johnson explained also that his inability to terminate his O.D.T. duties with the year end, as he had expected, means that he will be unable to serve as I.C.C. chairman in 1946, for which post he is in line under the Commission's policy of rotation.

Land-Grant Repealer Goes to President Truman

Congressional action on H.R. 694, the Boren bill to repeal remaining provisions of the land-grant-rate law was completed November 30 when the House adopted the revised conference report which had been approved by the Senate on November 20. The bill now awaits action by President Truman.

The final version retains the October 1, 1946, effective date, but it does not contain the so-called "veterans' farms fund" provision, which caused the first conference report to be rejected by the House. The latter's favorable action on the second conference report was by a division vote of 159 to 44.

The vote was preceded by some debate in which the principal opposition speeches were made by Representatives Cochran, Democrat of Missouri, and O'Hara, Republican of Minnesota, the latter being the only member of the committee on interstate and foreign commerce who had dissented from that body's favorable report on the original House version of the bill.

Meanwhile proponents were led by the bill's sponsor, Representative Boren, Democrat of Oklahoma, who kept before the House the fact that it had already passed the bill by an overwhelming vote; so that the only new matter involved was the change in the effective date. Other members of the committee on interstate and foreign commerce, including Chairman Lea, also spoke in favor of the conference report.

Emergency Board Appointed

President Truman has appointed an emergency board to investigate a dispute which had brought the threat of a December 6 strike to the Texas & New Orleans. The employees are represented by 11 of the so-called "standard" railway labor organizations, and the issue involves a demand for additional employee representation on the board of directors of the hospital association affiliated with the road.

Suspends C. N. J.'s Proposed Commutation Fare Increase

The Interstate Commerce Commission has suspended from December 1 until July 1, 1946, schedules proposing to increase by 20 per cent the commutation fares between New York and points on the Central of New Jersey, New York & Long Branch, and Reading. The suspended schedules would also increase by 20 per cent the local commutation fares of the C. N. J. between Easton, Pa., and points in New Jersey extending from Phillipsburg to Elizabeth.

Would Provide for Reparation Payments by Truckers

Chairman Lea of the House committee on interstate and foreign commerce has introduced H.R.4872 to amend the Interstate Commerce Act to provide for awards of reparations against motor carriers and freight forwarders. Like S.864, introduced last April by Chairman Wheeler of the Senate committee on interstate commerce, the bill is designed to bring about uniformity in the matter of reparations by applying like provisions to all transport agencies subject to the act.

The present law provides for awards of reparations against railroads and water carriers. Under the Wheeler and Lea bills, the limitation period for the filing of reparations claims against all carriers would become two years, as one provision would reduce to that term the present three-year limitation on claims against water carriers.

Fine for Failure to Observe Published Tariffs

The Interstate Commerce Commission has been advised that in the United States District Court for the Eastern District of Louisiana, at New Orleans, on November 28, the Texas & Pacific entered a plea of *nolo contendere* to three counts of an information in five counts, charging failure to observe provisions of its published tariffs, whereupon the court assessed a fine of $3,000. Two counts of the information were *nol prossed*.

According to a statement from I. C. C. Secretary W. P. Bartel, the information charged violations of the Elkins Act "grow-

ing out of the practice of the carrier in making deliveries of advise shipments prior to receipt of delivery orders and without demanding security as defined in Rule 7 of the Consolidated Classification." The case was investigated by the commission's Bureau of Inquiry.

House Votes River Funds

Overriding its committee on appropriations, the House last week inserted in the first deficiency appropriation bill for the fiscal year 1946 appropriations of $25,516,000 for rivers and harbors work and $100,759,000 for flood control. As noted in the *Railway Age* of December 1, page 915, the committee had not included any funds for such work in the bill as reported.

The House passed the bill on November 30. It also carries additional funds for the Interstate Commerce Commission and National Mediation Board.

Charge Explosives Rules Were Violated

Advice has been received by the Interstate Commerce Commission, according to Secretary W. P. Bartel, that an indictment in eight counts was returned November 21 in the federal district court at Los Angeles, Cal., charging the Atchison, Topeka & Santa Fe with violations of commission regulations governing the transportation of explosives and other dangerous articles. The case was prepared for prosecution by the commission's Bureau of Inquiry after investigation by the Bureau of Service.

Senate Gets Patterson and Lee Appointments

Following through from his press-conference announcement which was noted in last week's issue, page 915, President Truman on November 29 sent to the Senate his reappointments of Interstate Commerce Commissioners William E. Lee and William J. Patterson for new terms ending December 31, 1952.

The appointments were referred to the committee on interstate commerce which was scheduled to consider them at a December 7 meeting. It was stated at the committee on December 5 that no protest or request for hearing had been received.

Jurisdictional Issue Raised on Senate Transport Study

Raising the question of overlapping committee jurisdictions, Senator Brewster, Republican of Maine, blocked immediate Senate consideration of the McFarland resolution calling for a comprehensive transport study by the committee on interstate commerce, when that measure was reported favorably from the committee on audit and control November 30. As noted in the *Railway Age* of August 4, page 222, the resolution is S. Res. 161, sponsored by Senator McFarland, Democrat of Arizona; and it contemplates a study like that which Chairman Lea of the House committee on interstate and foreign commerce proposes to have that committee undertake under H. Res. 318, now pending before the House rules committee.

When the McFarland resolution came before the Senate on November 30, Senator Taft, Republican of Ohio, said that he had no personal feeling about the matter, but he called attention to the fact that Chairman Bailey (Democrat of North Carolina) of the committee on commerce was absent from the chamber. The formal objection to consideration then came from Senator Brewster. Whereupon Chairman Wheeler of the committee on interstate commerce explained briefly what the resolution proposed.

Senator Brewster persisted in his objection, although he said he was in "general sympathy" with the idea of "an integrated study." He added: "There are . . . certain jurisdictional questions concerning which there has been considerable discussion with respect to aircraft and other matters. I should like an opportunity at least to look at the resolution and have an opportunity for the chairman of the commerce committee to consider it, although I am not prepared to indicate that I shall have any serious objection.

As noted in the *Railway Age* of November 24, page 876, the jurisdictional issue is also reported to be delaying action by the House rules committee on the Lea resolution.

Through Coast-to-Coast Service Favored by Wheeler

Chairman Wheeler of the Senate committee on interstate commerce sees no reason why the railroads cannot provide facilities for through Pullman travel from coast to coast. He so declared on the floor of the Senate November 29 when he read into the Congressional Record the New York Herald-Tribune's recent editorial on the subject, which was reprinted in the *Railway Age* of December 1, page 915.

The editorial was inspired by the recent advertisements wherein the Chesapeake & Ohio and New York, Chicago & St. Louis have asserted their willingness to cooperate with western roads in the establishment of through transcontinental passenger service. Senator Wheeler said he hoped that "other railroads which operate trains from Philadelphia, New York, Boston, and Washington will join in the plan suggested." He also assailed present transcontinental travel facilities which require that the journey be broken in Chicago or St. Louis.

"I call attention to the fact," he said, "that a traveler who leaves Washington for the Northwest, on the Capitol Limited or on the Pennsylvania, arrives in Chicago about 8:30 in the morning. He cannot get one of the good trains out of Chicago for the Northwest until 11 o'clock at night. At 11 o'clock at night three trains leave Chicago for the Northwest at identically the same hour on the Great Northern, the Northern Pacific, and the Milwaukee. A woman making the trip from Washington to the Northwest with three or five children is forced to stay in Chicago from 8:30 o'clock in the morning until 11 o'clock at night. She may be obliged to take rooms in a hotel for herself and children during the time she stays in Chicago.

"The same is true of business men. The result is that today travelers, instead of taking the trains, are resorting to airplane travel when they are in the slightest bit of a hurry. It seems to me that intelligent self-interest on the part of the railroads would cause them to put into effect a through service of Pullman cars from coast to coast to accommodate travelers who go from coast to coast or from the Atlantic coast, let us say, to the intermountain states."

Prescribes Minimum Truck Rates on Salt from Kansas

Reporting on reconsideration in No. 28716 and related proceedings, the Interstate Commerce Commission has now decided to prescribe minimum motor carrier rates for the transportation of salt and salt mixtures from Hutchinson, Kans., Kanapolis, and Lyons to points in Kansas, Arkansas, Oklahoma, Missouri, Iowa, Nebraska, Wyoming, Colorado, and New Mexico. At the same time, the railroads, having stated that they would be agreeable, will be expected by the commission to bring lower present rates, with certain exceptions, back to the general basis established in 1934 as a result of the commission's decision in *Rate Structure Investigation, Part 13, Salt*, 197, I. C. C. 115.

In the prior report (see *Railway Age* of December 30, 1944, page 1007), Division 2 refused to prescribe minimum truck rates, but the present decision affirms the division's other findings which require certain changes in motor carrier minimum weights, tariff descriptions, rules, and regulations. The title case involves the complaint of the Morton Salt Company, which "prefers to ship by rail" but "has been obliged, because of competition, to make extensive use of motor carriers." The objective of the complainant, as the prior report had put it, was "not to secure reductions in rates, but, on the contrary, to promote establishment of minimum rates from the Kansas field by rail and motor carriers, and uniform rules and regulations to govern them, in order to avoid controversies with respect to rates from other producing fields, and to terminate present rate difficulties between rail and motor carriers, also between motor carriers themselves, growing out of unrestrained competition for traffic."

The minimum truck rates prescribed range from 17 cents per 100 pounds for distances from 130 to 140 miles to 76 cents for distances from 950 to 975 miles, the minimum weight being 20,000 pounds. The scale, the commission said, "is considerably higher than many of the present rates, especially for the longer distances." A tabulation of comparative rail rates indicates that many of them are higher than the prescribed truck scale for distances under 220 miles, and the rail minimum weight is 45,000 pounds. Also, there are instances of rail rates for longer distances being higher. Moreover, as the commission pointed out, the restoration of the rail rates to the basis established following *Rate Structure Investigation, Part 13, Salt*, will alter the comparison by increasing some of the rail rates.

Commissioner Splawn filed a dissenting expression in which Commissioners Aitchison, Lee, and Mahaffie joined. He complained that the majority had required "substantial increases" in motor carrier rates "on a record which lacks reliable cost data and an adequate showing of the many important factors affecting the competitive position of the carriers." It was "evident" to Mr. Splawn that the prescribed minimum rates "will force tonnage to the rails and

private and non-regulated motor carriers, and in turn require substantial increases in the rates of the common and contract carriers on high-grade manufactured articles." Regulated motor carriers serving the territory, he argued, "can actively compete for high grade traffic only so long as they are able to obtain traffic such as this salt from Kansas in volume adequate to approach or attain their maximum economy."

In the latter connection Commissioner Splawn had previously pointed out that salt is a "relatively cheap and clean commodity, weighing 50 pounds per cubic foot." He added that this is "attractive traffic for trucks," making "ideal bottom loads"; and, "when reasonable rates can be maintained thereon, it affords motor carrier opportunity to balance their loading in both directions."

O. D. T.'s Highway Transport Department Folds Up

All offices of the Office of Defense Transportation's Highway Transport Department were closed on December 1 when all activities of the department terminated with the end of new commercial motor vehicle rationing, the last remaining O.D.T. control over rubber-borne highway transportation. The December 1 fold-up closed the department's Washington office and the remaining regional offices at New York, Atlanta, Ga., Cleveland, Ohio, Dallas, Tex., Chicago, Denver, Colo., and San Francisco, Calif.

The department was organized in June, 1944, through the consolidation of the divisions of motor and local transport, established in December, 1941, and January, 1942, respectively. Personnel at the time of the consolidation totaled 3,896 employees, including 177 in Washington and 3,719 in the field. In July, 1944, at the peak of its activities, the department's field organization included nine regional offices, 142 district offices and 30 branch offices.

Representation of Employees

The Association of Station Masters & Assistant Station Masters has supplanted the Railroad Yardmasters of America as the Railway Labor Act representatives of Long Island station masters and assistant station masters, according to results of a recent election which has been certified by the National Mediation Board.

In two other recent elections on the Louisville & Nashville and Florida East Coast, the American Train Dispatchers Association extended its coverage to all dispatchers on those roads. It previously represented all on the L. & N. except the chief and night chief dispatchers, and all on the F. E. C. except the chiefs and assistant chiefs. Motormen, conductors, and brakemen employed by the Springfield (Vt.) Terminal have chosen the Order of Railway Conductors.

Air Transport Study Board Proposed in Bill

Senator Mitchell, Democrat of Washington, has introduced S.1639 to establish a National Air Policy Board which would be directed to make "a full and complete study and investigation of air transportation and its relation to the national defense and a national transportation system by water, highway, rail, and air adequate to meet the needs of the commerce of the United States, both interstate and foreign." The board would consist of nine members appointed by the President with the advice and consent of the Senate.

They would receive $25 and expenses for each day spent in meetings or conferences held upon the call of the chairman. The board would be required to make its report to Congress not later than three months after the bill's enactment date. All types of carriers would be permitted to provide free transportation and "other carrier services" to members while traveling on official business.

I. C. C. Service Orders

Strikes in the trucking industry have caused the Interstate Commerce Commission to issue two additional service orders embargoing outbound l.c.l. rail shipments. Service Order No. 391, effective from December 5 until December 10 unless otherwise provided, prohibits acceptance by railroads of any outbound l.c.l. shipment at Omaha, Neb., South Omaha, or Council Bluffs, Iowa, except such freight loaded by shippers which does not require handling through railroad freight houses. Service Order No. 392 places a similar embargo at Kansas City, Mo.-Kan., effective from December 5 until January 4, 1946, unless otherwise provided, and applying to all outbound l.c.l. except perishables.

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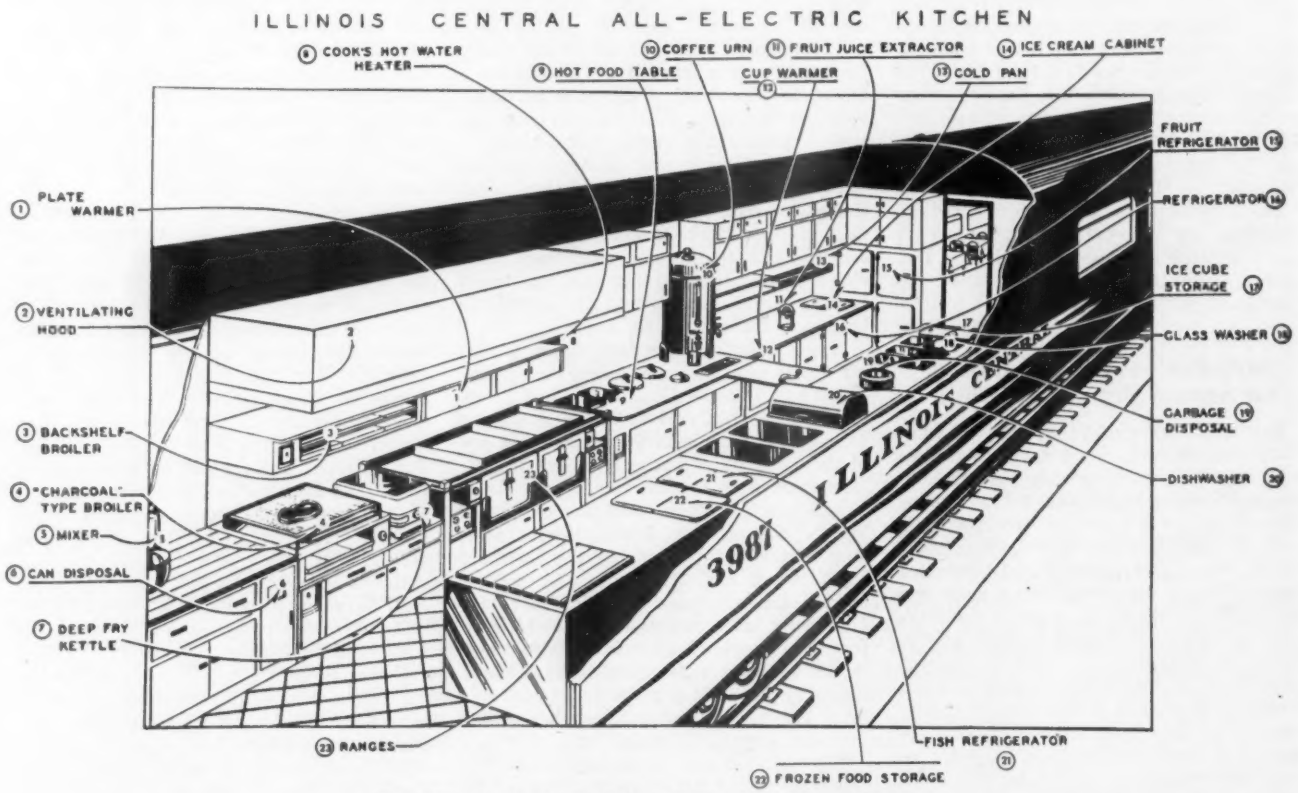

The Illinois Central's New All-Electric Diner Kitchen

The first of its kind on American railroads, this neat, compact, convenient kitchen is designed to meet the requirements of travelers on high-speed trains. Large quantities of food will be prepared in a small area, and four cooks will be on duty at all times in the kitchen proper, with six waiters in and out of the pantry. The square footage will average 6½ feet per worker. All appliances will operate on electric power from the car's own complete electric generating plant. The kitchen was designed and will be manufactured by the Edison General Electric Appliance Company, cooperating with N. L. Patterson, general superintendent of dining service for the Illinois Central. Installation will be made in the railroad's own shops, and the new car is scheduled to be in use early in 1946.

Meanwhile, Service Order No. 380 which established a similar embargo at St. Paul, Minn., Minneapolis, and Minneapolis Transfer, was suspended by the commission on December 1. It had been issued November 26 to be effective from November 27 through December 5.

Government Takes Over Great Lakes Towing Co.

Acting under the provisions of an executive order issued by President Truman, the Office of Defense Transportation on November 29 assumed control of the Great Lakes Towing Company of Cleveland, Ohio, whose 55 towboats operate in all Great Lakes ports except Milwaukee, Wis. The seizure resulted from a strike which started at Buffalo, N. Y., about two months ago and has since spread to other lake ports.

Upon taking over for the government, the federal manager—L. C. Turner, director of O.D.T.'s Waterways Transport Department—said that the lack of tugboats to move grain and coal ships "is hampering the adequate movement of these vital commodities in the face of the close of the Great Lakes navigation season—about December 15." He added that the tugs will also be required from time to time during the winter to tow ships in the ports alongside elevators for unloading.

Materials and Prices

The following is a digest of orders and notices that have been issued by the Civilian Production Administration, the Surplus Property Administration and the Office of Price Administration, since November 20, and which are of interest to railways:

Ethyl Alcohol—Manufacturers' ceiling prices for industrial ethyl alcohol produced east of the Rockies have been increased 3½ cents a gallon for the basic formula, with slightly smaller increases allowed for other formulas, according to Amendment 14 to MPR 28—effective December 1.

Ceilings of products made from industrial ethyl alcohol are not changed, and purchasers, who will absorb these increases, are largely manufacturers of solvents, industrial chemicals, drugs, cosmetics and other items.

Hardwood Lumber—"Special item" pricing has been simplified in three hardwood lumber regulations, so that once a seller has had a price approved for such an item he may continue to sell the same item at that price except insofar as the applicability of the price may be expressly limited. The actions, effective December 4, 1945 cover hardwood lumber produced in the Southern, Central and Applachian hardwood regions, and are covered by Amendment No. 21 to RMPR 97, Amendment No. 22 to MPR 146 and Amendment No. 19 to MPR 155.

During the war, when numerous orders for special items were placed by the military and naval services and by manufacturers of products sold for war purposes, O. P. A. required lumber mills to obtain price approval for each sale of a special item. With the end of the war, such orders have greatly diminished, O. P. A. said, and the reequirement that price approval be obtained for each sale is therefore removed.

Lumber—Sales by private owners and by the government of almost all surplus lumber, except used lumber, have been brought under MPR 603, a new regulation, effective December 3 and fixing prices at levels now prevailing for producing mill sales, plus a transportation allowance. Hardwood plywood, ship oak and a few other items not likely to be found in surplus stock are omitted from the new regulation. All sales of privately owned surplus lumber, amounting to $50 or less are exempted from price control.

Sales of $300 or less by the government, government contractors or government agents, which were exempted under an earlier action, are still exempt and used lumber remains under the coverage of a regulation permitting community dollar-and-cent ceilings.

The new action will have little total effect on present consumer prices of surplus lumber, O. P. A. said, since sales by saw mills and concentration and distribution yards, principal sources of supply to consumers, are not affected by the new regulation. Most of the lumber affected by today's action will be that left over as a result of termination or cancellation of government contracts, O. P. A. said. In any case, to qualify as surplus the lumber must have been bought for use and not for resale.

Under the new regulation, owners have the option of selling "f.o.b. present site," "where is," or delivered to the destination specified by the buyer. In the first case, the ceiling price is the f.o.b. mill price as determined under the regulation applying to mill sales of the species of lumber involved, plus a transportation charge, and seller must provide loading service upon the conveyance which will transport the lumber to the buyer. The transportation charge in each case may not exceed the freight rate from the basing point, as defined in the new regulation, to the rail receiving point nearest the present site of the lumber, and further reduced by the cost of transportation to the loading-out point.

A "where is" sale is one in which the seller does not move the lumber to a loading-out point, or offer any handling service. In such sales, the f.o.b. site ceiling price must be reduced by $1.50 per M f.b.m.

On delivered sales, the seller may add to the f.o.b. site ceiling an amount for outbound freight. Tables for computing outbound freight charges are given in the regulation, and differ for hardwood and softwood and green and dry lumber. If delivery is by truck, allowable transportation charges are given in dollar-and-cents on a mileage basis.

Surplus lumber affected includes: Northern and Northeastern softwoods, southern pine, tidewater red cypress, western pine and associated species, Douglas fir and other west coast lumber, Sitka spruce, redwood, western red cedar; softwood plywood; northern, northeastern, Appalachian, central and southern hardwood lumber; aromatic red cedar and walnut lumber and gunstock blanks; and western softwood shingles.

Steel—Representatives of the O. P. A. will hold a meeting with steel producers in Pittsburgh on December 10, next, to discuss what price action can be taken to relieve financial hardship for the small non-integrated steel companies (those which buy semi-finished steel and process it further). This session will be followed by a meeting of the O. P. A. General Steel Products Industry Advisory Committee in New York City on December 12 to explore price relief further for the non-integrated producers.

Some small non-integrated companies are experiencing hardship because their production costs have increased as a result of changeover of production from wartime to peacetime products, and on November 23, 1945, Price Administrator Chester Bowles said their ceiling prices would be discussed with members of the General Steel Products Industry Advisory Committee as soon as a meeting could be called.

Price action for only the small non-integrated companies will be discussed at both meetings. In his November 23 statement, Mr. Bowles said O. P. A. finds no cause at this time for a general increase in steel prices. He promised, however, that the situation with regard to general steel prices would be reviewed promptly when the next financial returns from the steel companies are submitted to the agency after January 1, 1946. All steel companies are being invited to send representatives to the Pittsburgh meeting, and discuss prices with O. P. A.

Steel Castings—An increase of 11 per cent in ceiling prices for all steel castings and railroad specialties except armor, navy and ordnance castings has been provided by RPS 41—effective November 30.

Sales and deliveries of steel castings and railroad specialties have been on an adjustable pricing basis since October 5, 1945, pending determination and announcement of today's increase. The industry, O. P. A. said, has been operating at a loss since early summer because of ending of orders for war items and its return to production of peacetime goods. Ceiling prices for most of its peacetime products were the prices charged in 1941.

A study of financial data for companies producing 40 per cent of all castings indicated that in the third 1945 quarter the industry experienced an average loss of 10 per cent on sales or 17 per cent on net worth.

Where prices of individual castings or an individual company's products have been previously adjusted, the seller may use the adjusted prices he received or his old unadjusted ceiling prices with the 11 per cent increase applied, whichever is higher.

The amendment also extends the usual 12 per cent high tensile extra to all railroad specialties, such as truck side frames, bolsters and couplers, which are made from high tensile steel. Previously the high tensile extra could be charged only by producers who had been given individual authorization to do so.

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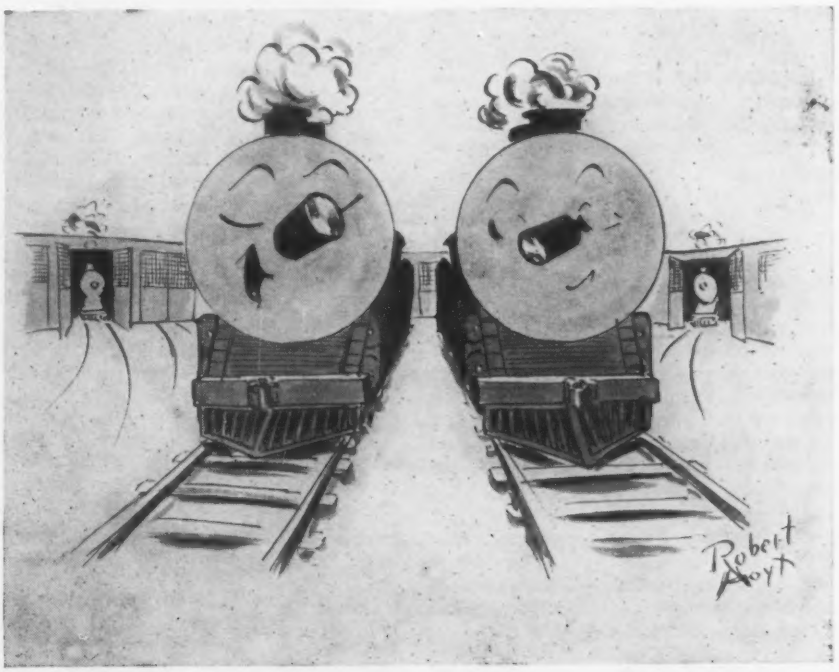


So What — *I* Hauled *Two* Hundred Thousand Troops!

Equipment and Supplies

LOCOMOTIVES

The Carnegie-Illinois Steel Corporation has ordered four 275-hp. Diesel-electric locomotives from the Whitcomb Locomotive Company.

The Chicago & North Western has ordered seven 1,500-hp. and four 2,000-hp. Diesel locomotives from the Electro-Motive division of the General Motors Corporation.

The Texas & Pacific has ordered two 1,000-hp. Diesel switchers for itself and one for the Fort Worth Belt from the Electro-Motive division of the General Motors Corporation.

The Sorocabana Railway, Brazil, has ordered eleven electric locomotives for freight and passenger service. The electrical equipment will be built by the Westinghouse Electric Corporation and the locomotives by the General Electric Company.

Missouri - Kansas - Texas. — The six 1,000-hp. Diesel-electric switchers ordered from the Electro-Motive division of the General Motors Corporation will cost approximately $500,000 in total. In the December 1 issue of the *Railway Age* these locomotives were reported incorrectly to cost approximately $500,000 each.

FREIGHT CARS

The Minneapolis & St. Louis plans to build 75 53½-ft. 50-ton flat cars next year in its own shops.

The Reading has ordered 100 27-ft. 4-in. 70-ton covered hopper cement cars for August, 1946, delivery from the company's own shops.

The Newburgh & South Shore expects to award a contract soon for 100 40-ft. 70-ton alloy steel gondola cars and the Donora Southern for 40 40-ft. 70-ton copper steel gondola cars.

The Great Northern expects to complete the 500 new plywood steel box cars now being built in its St. Cloud, Minn., and Superior, Wis., shops, by February 1, 1946. About 100 have already gone into service. These cars are similar to the 1,000 box cars constructed in 1944 and earlier this year, except that the steel is welded instead of riveted. Each car is two tons lighter than the average conventional box car. Fabrication and assembly of the steel underframes take place at Superior; the rest of the work is done at St. Cloud.

IRON AND STEEL

The Bessemer & Lake Erie has placed an order for 4,500 tons of rail with the Carnegie-Illinois Steel Corporation.

The Florida East Coast has placed orders for 23,600 tons of 112-lb. rail, allocating 13,600 tons to the Tennessee Coal, Iron & Railroad Co. and 10,000 tons to the Bethlehem Steel Company.

The Central of Georgia has ordered 15,000 tons of rail from the Tennessee Coal, Iron & Railroad Co.

The Reading has placed an order for 15,000 tons of 131-lb. rail for 1946 delivery with the Bethlehem Steel Company.

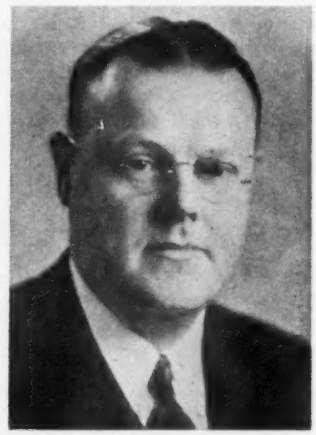
Supply Trade

R. C. Alley has been appointed manager of the newly-formed American Locomotive—General Electric Diesel-electric locomotive division of the General Electric transportation division's apparatus department, Erie, Pa. The new division was formed to better integrate **General Electric Company** activities with the American Locomotive Company in the marketing of the complete line of Alco-GE Diesel-electric locomotives sold to domestic railroads. Mr. Alley will be responsible for the General Electric's part in sales, application, servicing, and publicity of all

R. C. Alley

Diesel-electric locomotives, electrical equipments, parts, and service sold to railroads under the Alco-GE name. He entered the transportation field in 1929 when he transferred to the transportation equipment test department at Erie. In April, 1930, he entered the transportation control engineering division engaging in the design and application of control equipment for ten years. In July, 1941, he was transferred to the St. Louis, Mo., office and was General Electric transportation specialist in that territory until October, 1945, when he returned to Erie to take over his new assignment.

T. F. Perkinson has been appointed manager of the railroad rolling stock division of General Electric's transportation division at Erie. He succeeds **W. E. Lynch**, who was transferred to the Chicago office as locomotive specialist for the company's central district. Mr. Perkinson will be responsible for the sale, application, and servicing of railroad rolling stock business. This includes straight-electric locomotives; electrification; electric locomotive equipments; steam- and gas-turbine locomotives; and railroad export business He also will handle a-c and d-c multiple unit or other electric car equipments for railroad service, gas-electric and Diesel-electric car equipments, railroad passenger car and caboose equipment, such as axle-driven generators and control, self-contained power plants, and air-conditioning



T. F. Perkinson

equipment. His experience with railroad electrical matters began in 1917 when he started as an electrician's apprentice in the Mt. Clare, Baltimore, Md., shops of the Baltimore & Ohio. He had worked up to an electrician in the Cumberland, Md., back shops when he entered college. After his graduation from Rensselaer Polytechnic Institute in 1924 as an electrical engineer, he enrolled in the General Electric test course at Schenectady, N. Y. In 1925, he was transferred to the transportation equipment test department at the Erie works. From 1925 to 1927 he was assigned to the transportation control engineering division and the locomotive division, principally on development activities on the then, new, Diesel-electric locomotive. In 1927, he was sent to South America as a test engineer for the Anglo-Chilean Consolidated Nitrate Corporation at its Maria Elena plant where a 35-mile main-line electrification had been installed. In January, 1928, he returned to the United States and was associated with Gibbs and Hill on substation construction for the Pennsylvania electrification between Philadelphia, Pa., and Wilmington, Del. In May, 1928, he returned to General Electric in the railway engineering department where he remained until his recent appointment.

C. A. Leet, western regional manager, railroad division, of the Worthington Pump & Machinery Corp. at Chicago, has joined the **Superheater Company**, with headquarters in New York.

E. D. Connell, manager of the merchants iron and steel department of **Iron & Steel Products, Inc.**, has been elected a vice-president, with headquarters as before at Chicago.

Stephen A. Brooks and seven associates, each with experience in rotameter manufacture and applications, have organized the **Brooks Rotameter Company** and acquired a factory at Lansdale, Pa., with 18,000 sq. ft. of floor space. Manufacture has been started upon all

types of rotameters for flow rate management and control. For the past six years, Mr. Brooks has been vice-president in charge of sales and advertising of the Fischer & Porter Co. **Harry H. Long** will be chief fluids engineer in control of all specifications and calibrations. He will be assisted by **James Anthony** and **Joseph Ducsik. Barbutt W. Aiman** will be head of precision rotameter tube manufacture. **Jack Bradley** will manage production and **Lou Rosenblum** will handle purchasing and accounting.

Harry E. Cotton, formerly city engineer of Omaha, Neb., has been appointed consulting engineer of the **American Rolling Mill Company,** with headquarters at Middletown, Ohio.

Commander George Gellhorn, who left the **Worthington Pump & Machinery Corp.** on January 1, 1942, for active duty in the U. S. Navy, has resumed his position as export manager with offices at Worthington's Harrison, N. J., works.

The **Stanley J. Roberts Company,** Detroit, Mich., have been appointed engineering sales representatives in the Detroit territory for the **Kropp Forge Company** of Chicago. **Kenneth L. Clark** of the Roberts Company has been appointed contact man under the arrangement.

William A. Damerel has been appointed sales manager of **Seaporcel Porcelain Metals, Inc.,** of Long Island, New York. Mr. Damerel formerly was associated with the Maxim Silencer Company as district sales manager in Chicago and later as production manager at the Hartford, Conn., plant.

James B. Wright has been appointed sales engineer of eastern railway sales for the **Morrison Railway Supply Corporation** and **Morrison Metalweld Process, Inc.,** with offices in New York. Mr. Wright formerly was assistant supervisor of the Reading. He joined Morrison as sales representative in 1944.

The **Leslie Company,** Lyndhurst, N. J., has appointed the following agents to handle industrial sales and service: J. N. Fehlinger, New York; the Frank Howell Company, Richmond, Va.; John Zimmerman, Louisville, Ky., and the Bruce Greaves Company, St. Louis, Mo.

C. J. Bickler has been appointed manager of sales of the **Globe Steel Tube Company's** Los Angeles, Calif., office. Mr. Bickler has been assistant to the vice-president in charge of sales with headquarters in the general sales office at Milwaukee, Wis.

The **Homelite Corporation,** Port Chester, N. Y., has re-opened an office to serve the Chicago area. Located in Melrose Park, Ill., the office will be managed by **T. W. Gramm,** formerly manager of Homelite's Philadelphia, Pa., office. Mr. Gramm acted as a Homelite technician with the Army and Navy during the war.

The **H. K. Porter Company,** Pittsburgh, Pa., has acquired the **Fort Pitt Spring Company,** Pittsburgh, manufacturers of coil and elliptical springs, which it will operate as the Fort Pitt Spring Division. Henry Miller will continue as general manager of Fort Pitt Spring.

As a means of expanding production of its industrial power line of products, the **International Harvester Company** has purchased the Melrose Park (Ill.) plant of the Buick Company at a cost of $13,750,000. The plant, which contains 1,200,000 sq. ft. of floor space, will be used principally for the manufacture of Diesel motors.

TRADE PUBLICATIONS

JACKSON TAMPERS.—An interesting and unusual 40-page booklet has been prepared by the Electric Tamper & Equipment Company, Ludington, Mich., which describes in story-form the development and use of Jackson Tampers. Entitled "Observations on the Jackson Line," the booklet contains numerous illustrations, cartoons and drawings designed to acquaint the reader with the various types of Jackson Tampers and the best job-proven methods of operating them.

RAILROAD TERMINAL AND STATION LAYOUT.—The American Locker Company, Inc., Boston, Mass., has published a limited edition of an elaborate brochure entitled "Railroad and Bus Terminal and Station Layouts," which is a large album-type volume, bound in imitation leather. Approximately half of this book is devoted to descriptions of 29 recently-constructed or remodeled railway passenger stations. The book is attractively printed in color, with numerous large illustrations showing distinctive features of the various stations.

TIMBER CONNECTORS — The American Railroad system is one of the four largest users of lumber and forest products, according to a newly published booklet, "Teco Timber Connectors in Railroad Service," being distributed to railroad structural engineers by the Timber Engineering Company. The 20-page booklet, which is liberally illustrated, cites 72 domestic roads which employ the Teco system of timber construction. Separate chapters discuss the Teco split ring, spike grid, clamping plate, shear plate, toothed ring, claw plate and their railroad applications, exterior railroad structures and buildings. Through the booklet the Timber Engineering Company invites inquiries about the research facilities at its wood products development shop and laboratory. It also offers to railroad engineers typical designs of specific uses of timber connectors and sample connectors. Copies of the booklet may be obtained without charge from the headquarters of the company in Washington, D. C.

EMPLOYEE SUGGESTIONS.—Recent employee awards totaled over one hundred dollars and went to employees working at various points along the Louisville & Nashville. Winners included a boilermaker, a stockman, several agents, a clerk-operator, an assistant chief clerk, a flagman, a carman, electrician, conductor, yard dispatcher, locomotive carpenter, shopman and a telegraph operator.

Construction

BALTIMORE & OHIO.—The B. & O. has awarded the following contracts: For the construction of a spur track to the coal mining development at Muddlety, W. Va., at estimated cost of $110,000, to the Sutton Company, Radford, Va.; for the construction of an electric car dumper at Lorain, Ohio, at estimated cost of $1,200,000, to Heyl & Patterson, Pittsburgh, Pa.; for engine coal equipment at East St. Louis, Ill., at estimated cost of $39,000, to the Roberts & Schaefer Co., Chicago; for grading for a yard extension at East St. Louis, at estimated cost of $88,000, to the Kelley Bros. Co., East St. Louis; and for a trainmen's rest house at Fairmont, W. Va., at estimated cost of $75,000, to the Steiner Construction Company, Baltimore, Md.

CENTRAL OF GEORGIA.—This railroad has awarded a contract for the construction of Diesel shop facilities at Macon, Ga., at estimated cost of $190,000, to the Stillwell Construction Company, Macon.

CHAMBERS-LIBERTY COUNTIES NAVIGATION DISTRICT.—This organization has applied to the Interstate Commerce Commission for authority to build a 12-mile line from Liberty, Tex., to Moss Bluff, where the development of large sulphur deposits is under way.

FLORIDA EAST COAST.—This railroad has awarded a contract for the construction of 29 miles of single-track branch line, extending southwest from Ft. Pierce, Fla., to a connection with the Okeechobee branch, at estimated cost of $1,300,000, to the H. E. Wolfe Construction Company of St. Augustine, Fla.

NEW YORK CENTRAL.—This railroad has awarded a contract for the construction of a side track from the Port Morris branch to East 144 Street, between Southern boulevard and Bruckner boulevard, in New York, to the Del Balso Construction Company of New York. The railroad also awarded the following contracts to the Duffy Construction Corporation of New York: For the construction of a storeroom and locker building at Collinwood, Ohio, at estimated cost of $103,000; for the construction of a platform and canopy at Cleveland, Ohio, at estimated cost of $40,000; and for bridge repairs at Kenton, Ohio, at estimated cost of $55,000, and at Bucyrus, Ohio, at estimated cost of $35,000.

NEW YORK CENTRAL.—Division 4 of the Interstate Commerce Commission has denied the application of the Lake Erie, Alliance & Wheeling, one of this road's leased lines, for authority to construct a 2.8-mile branch from a point near Hopedale Junction, Ohio, to serve coal-mining properties of Waco Colleries, Inc. The application was opposed by the Pennsylvania and the Pittsburgh & West Virginia, with the latter of which the applicant would have been willing to execute a trackage-rights agreement as an alternative to the proposed construction. In reaching its adverse conclusion on the application, the commission stated that the proposed extension, however accomplished, would be an invasion of ter-

ritory tributary to the P. & W. Va., and would deprive that carrier of traffic which could be handled "more conveniently and economically" by it.

SPOKANE, PORTLAND & SEATTLE.—This road has awarded four contracts for improvement and expansion work on its system, with contractors and costs listed as follows: General Railway Signal Company, installation of protection signals for 35 stations from Vancouver, Wash., to Seattle, $525,000; Clifton & Applegate, Spokane, Wash., installation of 250-ton coal chutes at Washtucna, Wash., and Lamont, $124,800; Morrison-Knudsen Company, Boise, Idaho, widening of banks from Spokane, Wash., to Vancouver, 297,000; C. C. Moore & Co., Portland, Ore., installation of water tube boilers at Vancouver and Portland, $64,000. Other projects being done by company forces include installation of a telephone circuit, Wishram, Wash., to Bend, Ore., $25,000; Track changes and C. T. C. unit at Willbridge, Ore., $36,000, and modernization of the signal system, changing from semaphore to color light signals on six miles of double track between Willbridge and Vancouver, $23,000. The company plan also includes the installation of 750,000 cu. yds. of crushed rock ballast which is now being processed by contractors.

Financial

BALTIMORE & OHIO. — *Detroit - Toledo Trackage Rights.* — The Interstate Commerce Commission, Division 4, has approved the plan whereby this road will enter with the New York Central a trackage-right agreement to continue its Detroit-Toledo passenger-train service heretofore provided under arrangement with the Pere Marquette. As noted in the *Railway Age* of July 21, page 120, where the issues of the case were set forth in detail, Examiner Ralph R. Molster's proposed report had recommended denial of the application. Among the issues was the contention that discontinuance of the arrangements with the Pere Marquette would amount to a B. & O. abandonment of operation requiring I. C. C. approval; and the demands of the Railway Labor Executives Association, Brotherhood of Railroad Trainmen, and Brotherhood of Locomotive Engineers for the "protection" of Pere Marquette employees adversely affected by the discontinuance of trains operated under the joint arrangements by P. M. crews and motive power. Rejecting the first of these contentions, the commission held that the applicant's relationship with the P. M. has been one "providing for a joint traffic arrangement and not for an operation under trackage rights." Also rejected was the demand for employee-protection provisions.

"If the transaction proposed herein for any reason should fail then the applicant's operation would stop, as now, at Toledo," the report said. "We are without power to compel the Pere Marquette to grant trackage rights over its line. . . . The Pere Marquette refused and still refuses to extend the operating agreement. . . . The Baltimore & Ohio, therefore, was and is compelled either to make Toledo the terminal for the trains in question or to make other arrangements for them to reach Detroit. Should it have chosen to stop at Toledo the matter would not have been brought before us and the Pere Marquette employees could not have been the recipients of protective measures. If, at a later date, the Baltimore & Ohio had made arrangements for trackage rights over the New York Central it is hardly probable that the question of affording protection for employees displaced sometime previously would have been raised, or at least such a request would have been untenable. We do not believe that the situation is altered by the fact that the Baltimore & Ohio chose to make a new arrangement in the premises to become effective concurrently with the discontinuance of the old.

In our opinion any detriment to employees of the Pere Marquette will result from an act of that company and not by reason of the transaction here under consideration. Our approval of the transaction will not result in employees of the carriers by railroad affected by our order being in a worse position with respect to their employment. The record shows that employees of both the Baltimore & Ohio and the New York Central will be benefited."

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Reorganization Plan Approved.*—Division 4 of the Interstate Commerce Commission has certified that the commission's plan of reorganization for this road under section 77 of the Bankruptcy Act has been accepted by the four classes of creditors to which it was submitted. The percentage of votes for acceptance varied from 79.22 to 100.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*New Director.*—Robert S. McFarlane, vice-president of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Seattle, Wash., has been elected a member of the board of directors.

CHICAGO & NORTH WESTERN.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this road to issue $235,577.76 of promissory notes in further evidence of the unpaid purchase price of three 1,000 hp. Diesel-electric switching locomotives to be acquired under a conditional-sales agreement with the Baldwin Locomotive Works. The notes will bear interest at 1⅞ per cent, and will be payable in 96 approximately equal monthly installments, beginning with the second calendar month succeeding that in which the equipment is accepted.

ERIE.—*Merger of Leased Lines.*—This road has applied to the Interstate Commerce Commission for authority to acquire the properties of the Patterson & Ramapo, including all the capital stock of the Union, the acquisition to be followed by merger of those companies into the applicant which now operates their properties under lease. Designed to simplify the Erie's corporate and financial structure, the plan contemplates that the Erie would assume all Ramapo and Union obligations while surrendering for cancellation the capital stock of those roads.

GULF, MOBILE & OHIO.—*Acquisition of Alton.*—Division 4 of the Interstate Commerce Commission has issued a corrected report in Finance Docket No. 14931 wherein it had approved a plan of reorganization for the Alton and its subsidiary, the Kansas City, St. Louis & Chicago, which provides for separation of the Alton from the Baltimore & Ohio and its acquisition by the G. M. & O. The order remains unchanged and the previously-approved plan is not modified by the corrected report which merely rewrites some of the discussion relating to the general mortgage bonds to be issued by the G. M. & O. in connection with the acquisition. The original report was reviewed in the *Railway Age* of September 29, page 513.

ILLINOIS TERMINAL.—*Divestment of Control.*—Division 4 of the Interstate Commerce Commission in two reports has approved a series of transactions whereby a new company of the same name will acquire the properties of the I. T., and the Illinois Power Company will be divested of its ownership of that carrier's securities. The decision authorizes the purchasing corporation to issue not exceeding $2,500,000 of common stock consisting of 500,000 shares, par value $5, to be sold at not less than $8.75 a share; and to assume liability for not exceeding $13,500,000 of first-mortgage 4 per cent bonds, and $957,000 of equipment trust certificates. (Previous item in *Railway Age* of October 6, page 581.)

MISSOURI - KANSAS - TEXAS. — *Directors Meet in St. Louis.*—For the first time in the history of the Missouri-Kansas-Texas, the directors held their November meeting in the offices of the company at St. Louis, Mo. At this meeting, Henry L. Hammack of Kansas City, Mo., was elected a director of the company, succeeding Willis D. Wood of New York, who has resigned. R. J. Morfa, chairman of the board, announced that the directors have appointed the Chemical Bank & Trust Company, 165 Broadway, New York, as transfer agent for the transfer of stock, and paying agent for the payment of interest coupons on the company's bonds, etc., effective January 1, 1946. This action will coincide with the closing of the company's fiscal office at 25 Broad street, New York.

MISSOURI PACIFIC.—*Asked to Pay R. F. C. Loans.*—The Missouri Pacific has under consideration a request by the Reconstruction Finance Corporation for a repayment of its loans. R. F. C. advances totaled $23,134,000 on December 31, 1944.

NEW YORK, CHICAGO & ST. LOUIS.—*Purchase of W. & L. E. Stock.*—At a meeting in Cleveland, Ohio, on December 5, directors of the New York, Chicago & St. Louis declared a dividend of $3 per share on the preferred stock to be applied against past accumulations. The board also authorized the purchase, subject to Interstate Commerce Commission authorization, from the Chesapeake & Ohio of certificates of deposit for 78,145 shares of common stock of the Wheeling & Lake Erie at $70 per share, and obtained a one-year option on the C. & O.'s remaining holdings in the Wheeling consisting of certificates of deposit for 115,369 shares of prior lien stock and 1,658 shares of 5½ per cent preferred stock, at prices of $115 and $105, respectively. Purchase of the C. & O.'s holdings of Wheeling common will bring the Nickel Plate's ownership in the Wheeling up to 47 per

cent, and it will have an option on an additional 20 per cent of Wheeling stock.

NEW YORK CENTRAL.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for $17,700,000 of equipment trust certificates to finance 80 per cent of the cost of new rolling stock involving a total outlay of $22,308,500. The equipment to be acquired includes two 1,350-hp. "A" unit Diesel-electric road freight locomotives; 750 70-ton covered steel hopper cars; 153 steel coaches; 20 aluminum combination pasenger-baggage cars; 50 steel baggage cars; and four stainless steel passenger trains, each consisting of 15 coaches, one dining car, one kitchen-lounge car, and one tavern-lounge-observation car. The certificates would be sold on the basis of competitive bids with the interest rate named by the successful bidder, and they would mature in 10 equal annual installments from January 1, 1947, to January 1, 1956, inclusive.

PERE MARQUETTE.—*C. & O. Merger.*—On December 5, directors of the Pere Marquette unanimously approved the recent offer of the Chesapeake & Ohio for a merger or consolidation on the same terms of exchange of shares of stock as were previously announced. The plan will be submitted to the stockholders for approval. The terms of exchange offered by the Chesapeake & Ohio to the Pere Marquette are as follows: Each share of prior preference stock of the Pere Marquette to be exchangeable for one share of 3½ per cent cumulative convertible preferred stock and one-third of a share of common stock of the C. & O.; each share of Pere Marquette preferred stock to be exchangeable for eight-tenths of a share of 3½ per cent cumulative convertible preferred stock and four-tenths of a share of common stock of the C. & O.; and each share of Pere Marquette common stock to be exchangeable for one-half share of C. & O. common. The new C. & O. preferred stock will be convertible at any time into 1.6 shares of C. & O. common. The preferred stock will be redeemable in whole or in part on November 1, 1950, or any dividend date thereafter, upon 30 days' notice, at 105 plus accrued dividends. Integration of the two properties would mean a system of 5,260 miles of main line, extending from the Atlantic seaboard at Newport News, Va., to and through the lower Michigan peninsula to the West shore of Lake Michigan.

SOUTHERN.—*To Buy Atlanta & Charlotte Stock.*—The Southern has announced that it proposes to exercise its option to purchase on March 1, 1946, the capital stock of the Atlanta & Charlotte Air Line Railway at the option price of $250 a share. The Atlanta & Charlotte is operated under lease by the Southern which guarantees interest on the Atlanta's bonds and 9 per cent annual dividends on the stock. The Atlanta & Charlotte has outstanding 16,999 shares of $100 par value. As of March 5, 15,821 shares had been stamped with the Southern's guarantee of 9 per cent annual dividends, in exchange for which the Southern in 1914 was given the option to acquire the shares at $250 a share. The Southern will offer to purchase unstamped stock at the same price.

TEXAS CITY TERMINAL.—*Refunding.*—This company has applied to the Interstate Commerce Commission for authority to issue a $1,580,000 note in connection with a bank loan of that amount, which with other funds is to be applied to the redemption at 104 of an equal principal amount of first mortgage 4 per cent bonds due in 1961. The Second National Bank of Houston, Tex., has offered the loan on a 10-year installment note carrying 2⅞ per cent interest.

WESTERN PACIFIC.—*Reorganization Accounting.*—The Interstate Commerce Commission, Division 1, has discontinued the No. 29374 proceeding which it instituted on August 14 to investigate the matter of proper accounting to be performed in respect of opening journal entries in connection with this road's reorganization under section 77 of the Bankruptcy Act. The discontinuing order, dated November 26, states that the carrier "has submitted corrected journal entries which conform to the commission's uniform system of accounts for steam railroads."

Average Prices Stocks and Bonds

	Dec. 4	Last week	Last year
Average price of 20 representative railway stocks	63.22	62.70	44.76
Average price of 20 representative railway bonds	92.18	99.93	100.27

Dividends Declared

Alabama Great Southern.—Ordinary, $4.50; 6% preferred, $4.50, both semi-annually, and both payable December 24 to holders of record December 6.

Atchison, Topeka & Santa Fe.—Common, $1.50, payable March 2, 1946, to holders of record January 25, 1946; 5% preferred, $2.50, semi-annually, payable February 1, 1946, to holders of record December 28.

Atlanta & West Point.—$2.50, payable December 17 to holders of record December 5.

Beech Creek.—50¢, quarterly, payable January 2, 1946, to holders of record December 7.

Dayton & Michigan.—8% preferred, $1.00, quarterly, payable January 2, 1946, to holders of record December 17.

Mobile & Birmingham.—4% preferred, $2.00, semi-annually, payable January 2, 1946, to holders of record December 1.

New York & Harlem.—$2.50, semi-annually, payable January 2, 1946, to holders of record December 14.

Pittsburgh, Fort Wayne & Chicago.—Common, $1.75, quarterly, payable January 2, 1946, to holders of record December 10; 7% preferred, $1.75, quarterly, payable January 8, 1946, to holders of record December 10.

Reading.—2nd preferred, 50¢, quarterly, payable January 10, 1946, to holders of record December 20.

Ware.—Guaranteed, $3.50, semi-annually, payable January 2, 1946, to holders of record December 22.

Abandonments

CENTRAL OF NEW JERSEY.—Protests having been received, Division 4 of the Interstate Commerce Commission has revoked its certificate authorizing this road to abandon two segments of a branch, one of 0.88 mile at East Long Branch, N. J., and one from Highland Beach to East Long Branch, 5.5 miles. The proceeding has been set for hearing at a time to be named later.

CHICAGO, BURLINGTON & QUINCY.—Division 4 of the Interstate Commerce Commission has extended for an additional 2-year period its reservation of jurisdiction for the protection of employees who may be adversely affected by this company's line abandonment authorized in Finance Docket No. 14146.

DELAWARE, LACKAWANNA & WESTERN.—On further hearing upon petition of the Order of Railroad Telegraphers, Division 4 of the Interstate Commerce Commission has declined to impose conditions, similar to those prescribed in the Burlington case, 257 I.C.C. 700, for the protection of employees as a result of this company's abandonment, with commission authority, of a branch from Alford Junction, Pa., to Montrose, 9.93 miles. The union's petition followed an unsuccessful attempt to obtain a settlement of its claims on behalf of employees it represented to have been adversely affected, of which only one claim was pressed in commission hearings. In that case, said the division, a valid claim was precluded by the employee's acceptance of a position close to his home when his seniority entitled him to any of several positions carrying compensation equal to or exceeding what he had received in the position discontinued.

MARINETTE, TOMAHAWK & WESTERN.—This company has applied to the Interstate Commerce Commission for authority to abandon a 9.4-mile section of its main line between Kings and Harrison in Lincoln County, Wis.

MISSOURI PACIFIC.—Upon petition of the Railway Labor Executives' Association and the Brotherhood of Locomotive Firemen & Enginemen, Division 4 of the Interstate Commerce Commission has extended for an additional period of two years its reservation of jurisdiction with respect to the protection of employees who may be adversely affected by the abandonment authorized on December 13, 1943, in Finance Docket No. 14149.

MISSOURI PACIFIC.—Division 4 of the Interstate Commerce Commission has now refused to permit this road to abandon a line for which the division's prior report of September 16, 1944, had authorized issuance of an abandonment certificate, effective one year from that date. The prior report was noted in the *Railway Age* of September 23, 1944, page 497, and the present decision denying the application is the division's report on reconsideration. The proceeding (Finance Docket No. 14232) involved the M. P. application for authority to abandon its 70-mile line from Talmage Junction, Nebr., to Crete. The prior report refused to permit abandonment of the 11.9-mile section from Talmage Junction to Talmage, but it authorized (with the delayed effective date provision) abandonment of the 58.1-mile section from Talmage to Crete. Subsequently the case was reopened for rehearing and reconsideration, and the present report reaches its adverse conclusion on the application after reviewing the branch's more favorable earnings of the past two years. However, the report had this to say in closing: "We are not to be understood as saying that the applicant must continue operation of the line regardless of operating results. If after having made all possible efforts to reduce operating expenses and render the most efficient service possible consonant therewith it finds

that the traffic offered is insufficient to permit operation to be performed without substantial loss the application may be renewed."

Railway Officers

EXECUTIVE

J. Gordon Johnson, general manager and traffic manager of the Manistee & Northeastern, with headquarters at Manistee, Mich., has been promoted to vice-president and general manager, with the same headquarters.

At the first board meeting of the newly-organized Chicago, Milwaukee, St. Paul & Pacific, held in Chicago on December 3, **Leo T. Crowley,** chairman of the Standard Gas & Electric Co., Chicago, was elected chairman of the board of directors, and **H. A. Scandrett,** former trustee, was elected president. Other appointments which were also voted by the board are as follows: **J. T. Gillick,** former chief operating officer, to vice-president in charge of operations; **E. B. Finegan,** chief traffic officer, to vice-president in charge of traffic; **A. N. Whitlock,** former counsel for the trustees, to vice-president and general counsel; **J. W. Severs,** former executive assistant and comptroller, to vice-president and comptroller; and **R. J. Marony,** New York fiscal representative, to vice-president and New York fiscal representative, with headquarters as before at New York. **M. L. Bluhm, F. H. Jeffrey** and **T. W. Burtness** will continue as general solicitor, treasurer and secretary, respectively. All of these officers with the exception of Mr. Marony will maintain headquarters at Chicago.

FINANCIAL, LEGAL AND ACCOUNTING

H. S. Latham, assistant treasurer of the Northern Pacific at St. Paul, Minn., has been promoted to treasurer, with the same headquarters, succeeding **P. B. Lacy,** who has retired.

Conrad Olson, whose promotion to assitant general counsel of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of December 1, was born at St. Paul on January 19, 1895, and received his higher education at Macalester College and the St. Paul College of Law. He entered railroad service on November 15, 1928, as general attorney of the Northern Pacific. On February 1, 1940, he was promoted to commerce counsel, the position he held at the time of his recent promotion.

G. H. Penland, whose promotion to general solicitor of the Missouri-Kansas-Texas, with headquarters at Dallas, Tex., was reported in the *Railway Age* of November 24, was born at Hayesville, N. C., in 1888, and attended Grayson College, Whitewright, Tex., and Baylor University. He entered railway service in October, 1917, as a district attorney of the Katy at Waco, Tex., and in 1929 he was advanced to assistant general solicitor at Dallas.

In June, 1943, Mr. Penland was advanced to general attorney at Dallas, which position he held until his recent promotion.

OPERATING

R. E. Taylor, whose appointment as superintendent of transportation of the Canadian Pacific was announced in the November 24 issue of *Railway Age,* was born at Ripley, Ont., on November 12, 1892, and began his career with the Canadian Pacific in 1912 as an operator. In 1921, he became dispatcher, and in 1922, chief dispatcher at London, Ont. In 1931, he was advanced to assistant superintendent there. In 1934, he was appointed inspector transportation at Montreal, Que., and transferred to Toronto, Ont., in 1937. From 1940 to 1945, Mr. Taylor has served as superintendent with the following head-

R. E. Taylor

quarters, successively: Toronto, Bruce division; Schreiber division; London division; Winnipeg, Man., Portage division; and Medicine Hat division. His appointment as superintendent of transportation, Eastern lines, became effective on November 15.

S. McMahon, assistant traffic manager of Canadian Pacific Express, has been appointed assistant general manager, with headquarters as before at Toronto, Ont.

V. A. Gordon, assistant superintendent of the Missouri Pacific at St. Louis, Mo., has been transferred to Dupo, Ill., succeeding **V. R. Adkins,** who has been transferred to North Little Rock, Ark., where he relieves **M. L. Smith,** who in turn succeeds Mr. Gordon at St. Louis.

William C. Fisher, supervising agent of the Long Island, has been appointed superintendent of stations and transfers, New York zone, for the Pennsylvania, succeeding H. A. Sides, whose appointment as assistant freight claim agent was announced in *Railway Age* on November 24.

Alfred F. Hall, training program director for Railway Express at New York, has been appointed superintendent, commercial division, with headquarters there. He succeeds **Edward A. Chittenden,** whose retirement was announced in the December 1 issue of *Railway Age.* Mr. Hall was born at Prince Edward Island, Canada, on August 12, 1894, and entered

Alfred F. Hall

the express business at Seattle, Wash. He served in the United States Navy in World War I, then returned to Railway Express, holding assignments in the accounting and operating departments in Montana, California, Utah, Colorado, and Texas. He became district manager of public relations at Houston, Tex., then came to New York to direct the training program.

Mr. Chittenden was born in Stockport, N. Y., on November 17, 1874, and entered the express business in 1892. He was employed in express terminals and depots in New York and was agent at East 138th Street for six years. He was later assigned to posts in Philadelphia, Pa., Allentown, and Scranton. In March, 1930,

Edward A. Chittenden

he went to Buffalo, N. Y., to direct traffic development. Mr. Chittenden became commercial superintendent in New York in 1935.

J. A. Moran, superintendent of the Southern division of the St. Louis-San Francisco, who has been on leave of absence on account of illness, has returned to his headquarters at Memphis, Tenn.

C. B. Callaham, who has been acting superintendent during the absence of Mr. Moran, has resumed his duties as train rules examiner at Memphis.

C. R. Pedigo, assistant to the general superintendent and assistant director of terminals and freight train classification of the Missouri Pacific, has been appointed trainmaster of the Memphis division, with headquarters at Wynne, Ark., succeeding **C. R. Dodson,** assigned to other duties.

A. J. Horton, assistant general manager, labor relations, of the Chicago, Burlington & Quincy at Omaha, Neb., has been appointed acting general superintendent at Lincoln, Neb., with jurisdiction over the Omaha, Lincoln, Wymore, and McCook divisions, replacing **F. E. Haines,** who has been granted leave of absence because of temporary disability.

Stanley W. Crabbe, whose appointment as assistant general superintendent of the New Brunswick district of the Canadian Pacific was announced in the December 1 issue of *Railway Age,* was born at Teeswater, Ont., on August 9, 1885. He entered railroad service as a telegraph operator for the Canadian Pa-

Stanley W. Crabbe

cific, and has subsequently been division superintendent of the Schreiber division, and at Smith's Falls, Ont., and London, Ont. In 1937, Mr. Crabbe became superintendent of the Bruce division at Toronto, Ont., and of the Toronto Terminals, the position he was maintaining at the time of his recent appointment.

TRAFFIC

Roy S. Vincent has been appointed general freight and passenger agent of the Manistee & Northeastern, with headquarters at Manistee, Mich .

Mark H. Bradley has been appointed district passenger agent for the Seaboard Air Line at Jacksonville, Fla. **D. K. Murdock** has been named district passenger agent at Atlanta, Ga.

Elmer F. Buzan, division freight agent of the Southern at Memphis, Tenn., has been promoted to general cotton agent, with the same headquarters. **Robert C. Courtney** has been appointed division freight agent at Memphis, succeeding Mr. Buzan.

Frank Jensen, whose promotion to passenger traffic manager of the Texas & Pacific, with headquarters at Dallas, Tex., was reported in the *Railway Age* of November 17, was born at Ulysses, Neb.,

Frank Jensen

on July 21, 1877, and entered railroad service in 1891 as a messenger with the Chicago, Kansas & Nebraska (now part of the Chicago, Rock Island & Pacific) at El Reno, Okla., subsequently holding several minor positions until January 1, 1896, when he became chief clerk in the general passenger office of the same road at Ft. Worth, Tex. On July 1, 1912, Mr. Jensen was appointed chief clerk in the general passenger office of the Texas & Pacific at Dallas, and on March 1, 1920, he was promoted to assistant general passenger agent at New Orleans, La. In 1928 he was further advanced to general passenger agent with headquarters at Dallas, the position he held at the time of his recent promotion.

J. T. McEntee, assistant freight traffic manager of the Erie at New York, whose photograph appeared in the October 29 issue of *Railway Age,* along with an ac-

Arthur R. Walton

count of his railway career, has been advanced to freight traffic manager there. **Arthur R. Walton,** general agent at Akron, Ohio, has been appointed assistant freight traffic manager in New York. Mr. Walton was born in New York on January 26, 1886, and entered railway service in the transportation department of the Erie at Jersey City in 1905. After holding various positions in the transportation and accounting departments, he became chief demurrage accountant in the demurrage bureau of the accounting department at New York in 1915. In 1920 he was advanced to city freight agent at New York, and in 1927 to division freight agent at Paterson, N. J., becoming general agent at Newark, N. J. in 1935, and transferring to Akron in 1941. His appointment as assistant freight traffic manager became effective on December 1.

E. C. Nickerson, manager of traffic research and development for the New York, New Haven & Hartford at Boston, Mass., has been appointed assistant general traffic manager there. Mr. Nickerson, who was born in Chatham, Mass., in 1909, was graduated from Harvard College, and received his master's degree from Harvard Business School, specializing in transportation courses at both Harvard and the Massachusetts Institute of Technology. He began his career as a freight handler, then general clerk and traveling freight agent

E. C. Nickerson

for coastwise and inter-coastal steamship lines, and entered railroading as a traffic representative for the New York, New Haven & Hartford. He was advanced to special assistant to vice-president, devising ways and means of increasing the railroad's freight traffic, then to assistant manager of the sales and service department. In December, 1943, he became manager of traffic research and development. Mr. Nickerson is also the general director for the traffic subcommittee of the railroad committee for the study of transportation of the Association of American Railroads.

Ross E. Rowland, assistant industrial agent for the Central of New Jersey, has been promoted to industrial agent with headquarters in New York, succeeding **Frederick L. Ayers,** who has retired after 52 years' service.

W. P. Kromphardt, assistant general freight agent of the Erie at Youngstown, Ohio, has been promoted to special representative, with headquarters at Rochester, N. Y. **C. G. Andrews,** general agent at

St. Louis, Mo., has been advanced to assistant general freight agent, with headquarters at Youngstown, succeeding Mr. Kromphardt. **L. J. Slack** has been appointed general agent at Columbus, Ohio, replacing **L. J. Burgott,** who has been transferred to St. Louis, relieving Mr. Andrews. **H. G. Cooke,** division freight agent at Jamestown, N. Y., has been promoted to general agent, with headquarters at Akron, Ohio. **F. K. Corlett** has been appointed division freight agent, with headquarters at Rochester, N. Y., replacing **G. F. Mills,** who has been transferred to Jamestown, succeeding Mr. Cooke.

R. H. Nicholas, formerly employed in the general development office of the Nashville, Chattanooga & St. Louis, and recently discharged from the armed forces, has been promoted to industrial agent, with headquarters at Nashville, Tenn.

C. F. Lautenberger, traveling freight and passenger agent of the Chicago, Rock Island & Pacific at Cleveland, Ohio, has been promoted to district freight and passenger agent, with headquarters at Indianapolis, Ind., succeeding **R. Voigtmann,** who has been transferred to Pittsburgh, Pa., where he replaces **C. C. Head,** who has retired after 28 years of service.

W. J. Siering, general agent of the Missouri Pacific at San Francisco, Cal., has been promoted to assistant traffic manager, with headquarters at Detroit, Mich., a newly-created position. **L. L. Smith,** who has been on leave of absence to serve with the armed forces, has been re-appointed general agent at San Francisco, succeeding Mr. Siering.

E. E. Sharps, division freight agent of the Pere Marquette at Detroit, Mich., has been promoted to assistant general freight agent, with the same headquarters. **J. P. Donovan,** who has been on leave of absence to serve with the armed forces, has been appointed division freight agent at Detroit, succeeding Mr. Sharps. **Roland Cornell,** traffic representative at Detroit, has been promoted to general agent, with the same headquarters.

The Union Pacific has announced the following personnel promotions and changes, effective on December 31: **M. H. Fowler,** general passenger agent at Los Angeles, Cal., will be promoted to traffic manager, with headquarters at Detroit, Mich., succeeding **A. R. Malcolm,** who will retire. **H. A. Lawrence,** traffic manager at Denver, Colo., will be transferred to San Francisco, Cal., succeeding **W. H. Olin,** who will retire. **P. F. Echelle,** general freight agent at Omaha, Neb., will be promoted to traffic manager at Denver, succeeding Mr. Lawrence. **C. F. Farmer,** assistant general passenger agent at Los Angeles, will be advanced to general passenger agent, with the same headquarters, succeeding Mr. Fowler. **J. C. Beaumont,** general freight agent at Denver, will be transferred to Omaha, succeeding Mr. Echelle. **M. A. Light,** general agent at Minneapolis, Minn., will be promoted to general freight agent at Denver, succeeding Mr. Beaumont. **E. W. Mau,** chief clerk to the traffic manager at Chicago, will be promoted to general agent at Minneapolis, succeeding Mr. Light. **R. B. Johnson,** special representative at Omaha, will be promoted to assistant general passenger agent, with headquarters at Los Angeles, succeeding Mr. Farmer.

John Wagner, assistant general freight agent of the Reading at Philadelphia, Pa., has been advanced to manager industrial development. **W. M. Potts,** division freight agent, has been appointed industrial agent with headquarters as before at Philadelphia, succeeding **A. C. Levy,** who has resigned. **L. B. Schlosser,** assistant to general freight agent at Philadelphia, has become assistant general freight agent with the same headquarters, succeeding Mr. Wagner. **H. J. Lobb** has also been appointed assistant general freight agent at Philadelphia. The position of assistant to general freight agent has been abolished.

Mr. Wagner was born in Phoenixville, Pa., on June 6, 1892, and was graduated from the University of Pennsylvania. He entered railway service in 1916 as a draftsman with the Pennsylvania. After serving in the Pennsylvania National Guard, he returned to his former position

John Wagner

with the Pennsylvania in 1918. Shortly thereafter, he went to serve in the United States Army, American Expeditionary Forces, attaining the rank of captain by the time of his return to the Pennsylvania in 1919. In 1921, he joined the Philadelphia & Reading (now Reading) as supervisor of track, became acting supervisor of track for the Reading in 1926, and supervisor of track in that same year. Mr. Wagner was appointed industrial agent in 1928 and assistant general freight agent in 1936.

Stephen T. Stackpole, whose retirement as freight traffic manager of the Pennsylvania, with headquarters at Detroit, Mich., was reported in the *Railway Age* of November 24, was born at Hamilton, N. Y., on October 14, 1885, and was graduated from Harvard College in 1907. He entered railroad service on December 12, 1907, with the Pennsylvania, and held various clerical positions until September 6, 1910, when he became freight solicitor, in which capacity he served until he was advanced to Canadian freight agent at Toronto, Ont., on March 16, 1914. On December 1, 1916, he was appointed assistant foreign freight agent at New York, and on June 1, 1917, he was promoted to division freight agent, serving in this capacity at Baltimore, Md., Buffalo, N. Y., and Detroit. On November 11, 1925, Mr. Stackpole was further advanced to assistant general freight agent at Detroit and on April 1, 1927, he was promoted to general freight agent, with the same headquarters. In October of the same year he became general agent at Detroit, served in that capacity until July 1, 1928, when he was promoted to traffic manager at Chicago, and returned to Detroit on January 1, 1931, as assistant vice-president. On May 1, 1936, he was advanced to freight traffic manager at Detroit, the position he held at the time of his retirement.

ENGINEERING & SIGNALING

Gordon Wilson, automotive engineer for the New York Central, has been appointed assistant engineer of rolling stock, with headquarters as before at New York.

The following changes have been announced by the Norfolk & Western at Roanoke, Va.: **W. L. Young,** bridge engineer, has been appointed principal assistant engineer, succeeding **F. P. Turner,** who has retired. **H. F. Smith,** assistant engineer, succeeds Mr. Young as bridge engineer, while **B. E. Crumpler,** maintenance engineer, succeeds Mr. Smith. **J. F. Newsom, Jr.,** has been named maintenance engineer.

G. A. Noren, whose appointment as chief engineer of the New York Central at New York was announced in the November 24 issue of *Railway Age,* was born in New Britain, Conn., on April 6, 1886. He entered railroad service in 1910 as a rodman with the Pennsylvania. In 1911 he went with the Monterey Electric Railway, Light and Power Company at Monterey, Mexico, and also engaged in private engineering practice there. In 1912 he joined the New York Central as assistant engineer, becoming resident engineer at

Affiliated Photo-Conway

G. A. Noren

Poughkeepsie, N. Y. in 1916; assistant district engineer, Central district in 1917; engineer grade crossings, New York in 1920; and in 1924, designing engineer. Mr. Noren was promoted to engineering

assistant to vice-president at New York in 1927 and to engineering assistant to executive vice-president, New York Central System, in 1932. His recent appointment as chief engineer, Buffalo and East, became effective on November 14.

MECHANICAL

J. E. Boland has been named Diesel locomotive inspector for the New York Central at New York.

H. G. Moore has been appointed assistant superintendent car department of the Atlantic Coast Line with headquarters at Wilmington, N. C.

Francis D. Duncan, recently released United States Army major, has been appointed master mechanic for the Erie at Avoca, Pa., succeeding **C. F. Schwartz,** assigned to other duties.

John M. Sikes, whose appointment as superintendent of motive power of the Savannah & Atlanta at Savannah, Ga., was announced in the November 17 issue of *Railway Age,* was born on July 1, 1902, in Augusta, Ga. He entered railway service in 1918 with the Georgia at

John M. Sikes

Augusta as apprentice draftsman, later becoming shop engineer for the Atlanta & West Point, the Western of Alabama, and the Georgia. Mr. Sikes was named mechanical engineer for these lines on February 1, 1943, and maintained that position until the time of his recent appointment on the Savannah & Atlanta.

R. H. Romann, acting superintendent of motive power and equipment of the Peoria & Pekin Union at Peoria, Ill., has been promoted to superintendent of motive power and equipment, with the same headquarters, succeeding **E. A. Park,** whose recent death was reported in the *Railway Age* of November 10.

G. W. Kistner has been appointed master mechanic of the Western division of the Atchison, Topeka & Santa Fe, with headquarters at Dodge City, Kan., succeeding **W. W. Lyons,** who has been transferred to the Colorado division, with headquarters at LaJunta, Colo., replacing **G. M. Lawler,** who has been transferred to Southern Kansas division, with headquarters at Chanute, Kan. He relieves **W. A. Birch,** who has been transferred to the Middle division, with headquarters at Newton, Kan., replacing **A. J. Hartman,** who in turn has been transferred to the New Mexico division at Albuquerque, N. M., where he relieves **Andrew H. Beirne,** who has retired after 41 years of service.

John J. Daly has been appointed master mechanic of the Nebraska division of the Union Pacific, with headquarters at Council Bluffs, Iowa, and **O. J. Robinson** has been named assistant master mechanic of the same division, with the same headquarters. Mr. Daly, who has been serving as superintendent of motive power and machinery, with headquarters at Omaha, Neb., since February, 1945, will return to his former position at his own request, succeeding Mr. Robinson.

H. J. Warthen, whose retirement as superintendent motive power of the Richmond, Fredericksburg & Potomac at Richmond, Va., was announced in the December 1 issue of *Railway Age,* was born in Richmond on June 16, 1867. Entering railroading as machinist apprentice for the Richmond & Danville (now Southern), he became machinist in 1887, then gang foreman and foreman. Subsequently leaving the employ of that road to serve as locomotive inspector for the American Locomotive Company, Mr. Warthen returned to railroading in 1904 as general foreman locomotive department of the Richmond, Fredericksburg & Potomac. In 1908, he became master mechanic at the Potomac yard, and was named superintendent motive power in 1916.

Leigh Budwell, whose appointment as chief mechanical engineer of the Richmond, Fredericksburg & Potomac at Richmond, Va., was announced in the December 1 issue of *Railway Age,* was born on July 31, 1887, at Roanoke, Va., and

Foster Studio

Leigh Budwell

was graduated from Virginia Polytechnic Institute in 1914. He began his railway career in 1905 as machinist apprentice for the Norfolk & Western at Roanoke, becoming machinist in 1909. From 1910 to 1914, he attended school, returning to Norfolk & Western to serve in the test department. In 1915 he was advanced to electrical and mechanical inspector, Elkhorn electrification. Mr. Budwell joined the Richmond, Fredericksburg & Potomac in 1916 as mechanical engineer. During World War I, he served with the Engineers, American Expeditionary Forces as a first lieutenant. In 1919, he returned to his position as mechanical engineer for the R. F. & P. He was appointed assistant to superintendent motive power at Richmond in 1940, and maintained this post until his promotion on November 15.

PURCHASES AND STORES

J. F. Waite, commissary agent of the Nashville, Chattanooga & St. Louis at Nashville, Tenn., has been promoted to assistant to the purchasing agent, in addition to his duties as commissary agent, with the same headquarters.

SPECIAL

Nils A. Lennartson, captain in the United States Army Air Corps, has been appointed assistant publicity manager of the Maine Central at Portland, Me., and will also serve as associate editor of the road's employee magazine.

OBITUARY

A. Shelburne, auditor of claims for the Canadian Pacific, died on November 22 after 40 years of service.

Robert E. McAndrew, whose death was reported in the December 1 issue of *Railway Age,* was born on August 25, 1880, in Meadeville, Pa. He began his railway career in 1895 as a water boy in work train service with the Bessemer & Lake Erie. He became a call boy at Greenville, Pa., in 1896, and storekeeper there in 1897. Remaining at Greenville, he was advanced to supervisor of stores in 1916 and then to general storekeeper in 1918. He maintained the latter position until the time of his death.

PASSENGERS CARRIED.—In the five years ending September 30, 1945, the New York, New Haven & Hartford, according to its president, Howard S. Palmer, carried 7,277,417 service men in groups of 15 or more, about 25,000,000 more as individuals on furlough tickets, and about 200,000,000 other passengers. This was accomplished, Mr. Palmer pointed out, despite the fact that the New Haven gave 6,912 of its employees to the armed services.

C. & O. INDUSTRIAL ADVERTISING.—Fourth in the Chesapeake & Ohio series of advertisements dealing with employment and post-war outlook generally in industries along its lines is devoted to a discussion of the chemical industry. Entitled "Making Post-war Jobs—Out of Chemicals," the message suggests that this industry not only will continue to be a basic job-maker, but will provide "thousands of new jobs in the future."

(Table of Revenues and Expenses begins on next left-hand page)

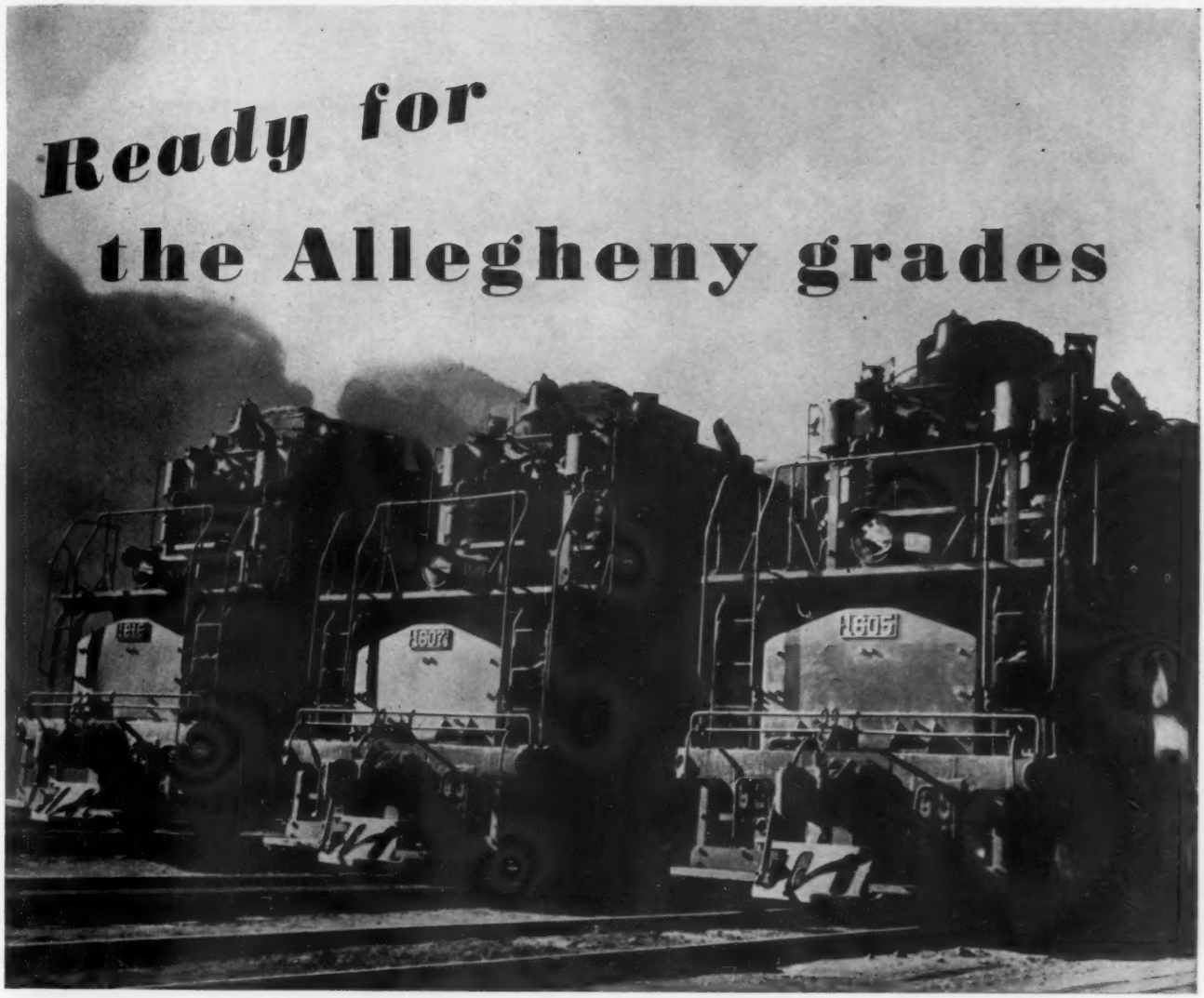
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1945

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Akron, Canton & Youngstown	Oct.	171	$264,251	$145	$282,118	$78,540	$37,501	$18,797	$94,006	$245,353	87.0	$36,765	$8,167	$14,481	$63,162
	10 mos.	171	3,494,743	1,673	3,673,078	812,684	381,941	184,530	1,163,552	2,723,188	74.1	949,890	389,644	360,078	659,687
Alton	Oct.	959	1,680,124	725,549	2,749,549	522,355	582,140	68,493	979,765	2,287,744	83.2	461,805	163,918	170,898	516,263
	10 mos.	959	20,107,048	7,040,300	30,601,361	4,326,327	5,080,516	722,738	10,457,314	21,381,575	71.5	8,719,786	3,576,064	3,254,036	3,516,510
Atchison, Topeka & Santa Fe System	Oct.	13,113	27,348,511	10,741,030	40,985,047	6,770,796	6,792,535	635,080	12,820,452	27,910,138	68.1	13,074,909	9,585,041	3,490,338	6,581,422
	10 mos.	13,115	337,368,399	90,275,701	456,949,920	79,039,875	125,585,239	6,388,013	124,995,613	342,881,573	75.0	114,068,347	76,630,006	32,112,474	46,706,789
Atlanta & West Point	Oct.	93	191,355	141,705	379,479	40,077	51,353	10,272	158,877	280,673	74.0	98,806	52,503	25,708	34,898
	10 mos.	93	2,564,284	1,412,798	4,398,826	461,505	985,151	108,198	1,633,384	3,382,035	76.9	1,016,791	525,997	251,609	335,646
Western of Alabama	Oct.	133	221,860	148,931	406,367	53,472	58,870	10,581	136,546	278,393	68.5	127,974	90,461	36,925	38,860
	10 mos.	133	2,550,066	1,468,844	4,364,537	604,530	1,220,915	107,559	1,461,214	3,573,832	81.9	790,705	460,839	298,999	454,923
Atlanta, Birmingham & Coast	Oct.	639	341,988	41,536	412,942	159,361	112,095	30,378	275,096	598,348	144.9	—185,406	Cr.194,773	—18,894	19,938
	10 mos.	639	6,067,172	500,130	6,898,219	1,215,440	1,151,902	303,973	2,857,078	5,772,593	83.7	1,125,626	434,268	322,516	318,021
Atlantic Coast Line	Oct.	4,931	6,204,090	3,267,377	10,370,359	2,573,550	2,379,429	191,056	3,625,908	9,190,635	88.6	1,179,724	600,000	517,538	556,774
	10 mos.	4,935	75,484,917	34,129,920	117,337,479	20,174,617	23,096,568	1,996,551	38,535,411	87,932,164	74.9	29,405,315	20,150,000	5,988,860	11,051,504
Charleston & Western Carolina	Oct.	343	287,756	15,832	312,165	63,393	68,881	11,158	125,148	275,099	88.1	37,066	15,000	24,822	43,351
	10 mos.	343	3,171,069	191,089	3,453,330	661,770	656,789	106,474	1,260,071	2,752,563	79.7	700,767	360,000	295,852	638,552
Baltimore & Ohio	Oct.	6,130	20,241,495	3,400,660	25,300,749	4,704,785	6,001,290	573,401	10,092,764	22,585,755	89.3	2,714,994	Cr.431,699	2,386,089	3,681,454
	10 mos.	6,131	251,840,011	40,141,207	308,529,916	43,513,885	64,516,100	5,382,614	107,770,815	232,514,826	75.4	76,015,090	33,640,267	35,540,297	38,091,576
Staten Island Rapid Transit	Oct.	29	156,943	130,002	307,340	53,365	46,494	1,344	136,252	261,681	85.1	45,658	40,293	—8,742	49,962
	10 mos.	29	2,923,468	1,428,820	4,472,197	557,423	475,969	14,042	1,574,176	2,872,885	64.2	1,599,312	606,919	719,676	968,217
Bangor & Aroostook	Oct.	602	579,741	81,874	692,788	138,825	205,065	6,344	220,421	604,763	87.3	88,025	Cr.15,424	121,024	133,098
	10 mos.	602	7,418,761	788,738	8,547,910	1,653,553	1,414,062	62,542	2,332,035	5,804,603	67.9	2,743,307	1,867,852	1,007,332	1,179,479
Bessemer & Lake Erie	Oct.	214	1,306,036	1,795	1,319,554	166,274	373,859	15,587	336,145	955,763	70.9	383,791	201,702	309,591	394,200
	10 mos.	214	15,382,141	22,642	15,543,982	1,491,517	7,098,884	135,490	3,384,150	12,514,906	80.5	3,029,076	1,989,673	3,159,669	3,785,608
Boston & Maine	Oct.	1,789	4,434,049	1,536,331	6,579,059	1,203,317	1,045,141	77,500	2,465,853	5,041,351	76.6	1,537,708	642,354	664,665	829,084
	10 mos.	1,789	47,451,854	16,146,691	69,874,079	11,918,878	12,463,387	889,555	25,853,749	53,614,922	76.7	16,259,157	6,832,521	6,647,554	8,548,991
Burlington, Rock Island	Oct.	228	160,953	80,487	262,990	35,946	33,942	3,380	113,722	201,797	76.7	61,193	10,179	6,963	72,536
	10 mos.	228	1,809,547	724,818	2,718,345	346,405	302,295	36,841	940,661	1,778,389	65.4	939,956	84,753	430,503	518,993
Cambria & Indiana	Oct.	35	80,817	.....	80,919	12,714	44,347	560	14,467	79,600	98.37	1,319	46,561	44,160	58,665
	10 mos.	35	1,281,355	.....	1,282,221	118,766	468,888	5,904	175,952	839,663	65.48	442,558	848,657	488,978	543,613
Canadian Pacific Lines in Maine	Oct.	234	324,889	187,525	561,707	82,875	76,070	6,749	165,432	345,076	61.4	216,631	22,073	128,361	—102,282
	10 mos.	234	4,233,352	1,074,902	5,691,729	856,838	771,121	67,054	1,790,796	3,608,750	63.4	2,082,979	220,795	1,050,988	1,023,856
Canadian Pacific Lines in Vermont	Oct.	90	87,509	24,175	125,579	36,830	32,466	2,443	99,904	176,656	140.7	—51,077	9,410	—99,546	—144,277
	10 mos.	90	827,998	213,447	1,169,941	354,802	296,764	24,388	990,977	1,717,945	146.8	—548,004	100,952	—1,017,931	—881,736
Central of Georgia	Oct.	1,815	2,164,107	582,349	3,041,630	466,306	462,914	75,887	1,213,340	2,368,430	77.9	673,200	182,654	481,738	487,573
	10 mos.	1,815	22,177,347	7,013,415	32,354,877	4,683,484	6,010,667	721,948	12,582,504	25,461,166	78.7	6,893,711	2,307,811	4,273,083	5,479,554
Central of New Jersey	Oct.	654	3,359,778	545,561	4,267,859	579,116	844,046	59,900	1,762,453	3,419,441	80.1	848,418	392,220	298,286	497,346
	10 mos.	654	38,753,320	5,970,830	47,867,677	5,181,592	8,690,398	592,407	19,351,538	35,559,398	74.3	12,308,279	5,127,492	4,821,662	4,674,142
Central Vermont	Oct.	422	504,356	65,000	635,367	86,205	132,907	9,998	326,739	583,482	91.8	51,885	38,860	—42,968	38,687
	10 mos.	422	5,516,711	778,000	6,878,932	1,069,567	1,218,862	98,337	3,290,157	5,958,734	86.6	920,198	323,710	34,456	652,190
Chesapeake & Ohio	Oct.	3,084	9,374,337	2,326,649	12,372,366	6,474,913	37,937,546	257,046	4,622,955	49,873,251	403.1	—37,500,885	Cr.27,470,000	—9,613,105	2,826,542
	10 mos.	3,078	145,843,081	17,858,569	170,154,680	28,532,746	72,847,972	2,567,620	49,608,303	159,281,779	93.6	10,872,901	1,832,165	14,117,016	28,062,542
Chicago & Eastern Illinois	Oct.	912	1,469,739	533,388	2,252,575	465,813	488,060	74,435	909,998	2,041,273	90.6	211,302	Cr.104,200	179,248	151,333
	10 mos.	912	17,621,785	5,568,877	25,501,437	3,370,301	4,618,137	701,813	9,234,526	18,985,203	74.4	6,516,234	2,388,750	2,301,327	2,570,446
Chicago & Illinois Midland	Oct.	131	542,057	1,005	575,712	146,528	99,389	22,609	146,356	441,532	76.7	134,180	65,210	73,981	80,156
	10 mos.	131	5,281,414	6,085	5,582,111	979,346	919,609	225,153	1,409,365	3,805,830	68.2	1,776,281	1,057,969	777,099	813,994
Chicago & North Western	Oct.	8,065	10,544,249	3,166,412	15,279,200	2,046,107	7,018,271	231,305	5,369,398	15,270,960	99.9	8,240	Cr.1,082,336	842,305	2,047,163
	10 mos.	8,068	97,089,373	31,044,768	143,210,027	19,987,762	31,760,879	2,224,594	49,059,434	108,369,054	75.7	34,840,973	16,720,530	17,993,654	19,797,972
Chicago, Burlington & Quincy	Oct.	8,964	14,251,831	3,358,692	19,561,712	3,910,829	2,262,577	325,545	5,597,703	12,705,444	65.0	6,856,268	4,504,058	1,942,587	2,424,008
	10 mos.	8,976	160,615,804	30,952,811	209,082,045	33,690,893	29,028,239	2,903,518	51,865,209	123,139,340	58.9	85,942,705	56,992,661	26,082,796	22,525,153
Chicago Great Western	Oct.	1,500	1,945,135	205,799	2,398,702	400,199	353,281	69,502	955,260	1,853,948	77.3	544,754	177,871	170,682	256,680
	10 mos.	1,500	20,400,264	2,199,860	24,597,786	3,894,100	3,400,671	661,207	9,271,551	17,973,752	73.1	6,624,034	2,874,297	2,162,169	2,633,745
Chicago, Indianapolis & Louisville	Oct.	541	739,959	54,501	849,733	144,797	171,771	33,257	310,878	699,923	82.4	149,810	14,778	75,399	318,187
	10 mos.	541	8,593,331	637,846	9,862,446	1,187,521	1,827,270	336,633	3,285,500	7,018,751	71.2	2,843,695	713,671	1,587,252	2,302,152

Cr. = Credit.

(Table continued on next left-hand page)



Over the Alleghenies, the C&O lines reach 2,072 feet above sea level and there are grades in excess of 1.14 per cent.

To handle its heavy freight traffic in this mountainous terrain, the C&O employs forty-five of these giant, four-cylinder, six-coupled, articulated steam locomotives, built by Lima.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
Chicago, Milwaukee, St. Paul & Pacific	Oct.	10,730	$14,607,353	$3,490,921	$20,055,676	$3,798,493	$6,542,381	$296,236	$6,822,056	$18,215,245	90.8	$1,840,431	Cr.$778,000	$2,246,635	$3,088,414
	10 mos.	10,726	145,472,428	29,390,686	193,995,291	38,120,383	38,534,399	2,984,820	64,647,713	151,297,788	78.0	42,697,503	16,450,000	23,749,869	27,050,097
Chicago, Rock Island & Pacific	Oct.	7,753	10,324,778	3,734,208	15,347,125	2,434,119	2,143,157	338,124	4,757,397	10,288,946	67.0	5,058,179	2,183,249	2,334,808	1,410,851
	10 mos.	7,751	118,334,359	35,178,270	165,579,068	24,342,014	23,223,670	3,488,609	47,606,931	104,690,494	63.2	60,888,574	32,185,809	23,011,921	24,083,454
Chicago, St. Paul, Minneapolis & Omaha	Oct.	1,617	2,058,538	365,205	2,654,540	352,296	636,501	41,148	1,009,558	2,130,887	80.3	523,653	168,618	269,047	435,897
	10 mos.	1,617	17,657,905	3,791,093	23,504,122	3,249,834	3,715,290	406,214	9,276,080	17,476,622	74.4	6,027,500	2,137,862	3,192,449	2,891,992
Clinchfield	Oct.	302	897,847	9,505	916,897	120,155	197,225	21,771	233,711	593,710	64.8	323,187	107,022	256,654	497,876
	10 mos.	302	11,070,070	110,481	11,271,622	1,003,818	1,968,456	222,840	2,605,621	6,011,297	53.3	5,260,325	1,248,205	4,301,218	5,170,529
Colorado & Southern	Oct.	748	902,087	254,194	1,321,761	178,644	204,931	18,542	410,988	860,384	65.1	461,377	175,128	234,985	300,745
	10 mos.	748	9,289,981	2,702,052	13,079,441	2,006,150	2,154,541	179,101	4,112,951	8,935,394	68.3	4,144,047	1,549,081	2,045,763	2,409,145
Fort Worth & Denver City	Oct.	804	805,301	448,286	1,417,708	368,813	151,186	28,237	376,381	991,045	69.9	426,663	183,358	194,596	182,951
	10 mos.	804	8,545,801	4,136,065	13,813,925	3,232,788	1,995,375	271,196	3,586,254	9,690,603	70.2	4,123,322	1,731,201	1,950,135	2,434,195
Colorado & Wyoming	Oct.	42	78,768	.....	122,706	15,115	20,250	773	45,561	86,235	70.2	36,471	19,884	16,549	3,322
	10 mos.	42	773,229	.....	1,273,404	133,371	195,783	7,411	481,749	864,451	67.8	408,953	215,372	193,660	296,922
Columbus & Greenville	Oct.	168	174,401	7,814	194,237	31,413	22,032	4,454	53,042	124,007	63.8	70,230	44,187	23,793	19,173
	10 mos.	168	1,221,138	89,282	1,396,626	324,812	202,001	46,723	474,088	1,195,026	85.6	201,600	165,458	48,569	100,159
Delaware & Hudson	Oct.	846	3,372,584	142,545	3,637,233	479,830	4,225,222	47,713	1,278,758	6,151,315	169.1	—2,514,082	Cr.1,020,919	—1,472,603	794,736
	10 mos.	846	36,015,334	1,959,849	39,105,578	5,017,859	13,509,778	479,636	14,095,269	34,286,223	87.7	4,819,355	2,197,351	2,271,330	7,391,062
Delaware, Lackawanna & Western	Oct.	973	3,915,598	872,495	5,378,972	872,557	1,066,816	112,822	2,369,853	4,614,389	85.8	764,583	512,000	256,112	879,228
	10 mos.	973	46,506,690	9,054,731	61,444,393	8,054,964	10,949,525	1,142,197	26,513,525	48,532,072	79.0	12,912,321	7,787,633	3,979,829	4,763,120
Denver & Rio Grande Western	Oct.	2,386	4,906,177	998,440	6,207,973	635,956	1,072,379	114,039	1,994,343	4,040,306	65.1	2,167,667	1,017,913	1,012,782	1,271,589
	10 mos.	2,386	53,293,968	8,371,919	64,294,763	9,794,473	20,912,829	1,017,387	18,437,428	52,202,456	81.2	12,092,307	12,171,058	—1,152,459	11,799,167
Denver & Salt Lake	Oct.	232	360,092	7,706	381,563	59,761	47,013	3,502	116,065	232,599	61.0	148,964	29,258	154,363	103,078
	10 mos.	232	2,558,548	89,809	2,763,085	518,567	542,788	33,017	908,303	3,117,216	76.6	645,869	299,192	820,477	762,529
Detroit & Mackinac	Oct.	230	80,605	5,530	95,159	16,947	17,543	764	38,153	78,180	82.2	16,979	4,543	6,587	14,031
	10 mos.	230	653,108	99,278	831,903	188,024	161,665	7,814	320,702	717,160	86.2	114,743	43,936	35,911	44,065
Detroit & Toledo Shore Line	Oct.	50	243,573	.....	244,557	43,162	23,591	10,250	94,990	180,681	73.9	63,876	13,955	5,702	54,968
	10 mos.	50	3,369,688	.....	3,385,468	395,257	279,358	100,514	1,015,061	1,877,327	55.5	1,508,141	496,977	444,348	580,177
Detroit, Toledo & Ironton	Oct.	464	502,021	1,198	543,046	94,007	146,646	16,250	189,256	472,511	87.0	70,535	37,666	15,918	189,782
	10 mos.	464	6,802,463	14,854	7,120,072	974,605	1,278,960	153,354	2,059,060	4,725,591	66.4	2,394,481	1,095,550	1,278,865	1,706,691
Duluth, Missabe & Iron Range	Oct.	546	4,240,429	3,550	4,908,727	359,040	361,136	5,372	928,878	1,699,318	34.6	3,209,409	1,442,555	1,779,472	1,802,157
	10 mos.	546	32,214,464	53,853	37,314,270	3,864,125	5,353,535	49,699	7,448,173	17,138,868	45.9	20,175,402	9,278,667	11,032,664	11,313,296
Duluth, Winnipeg & Pacific	Oct.	175	217,000	1,600	225,500	53,929	30,475	2,428	92,935	183,823	81.5	41,677	18,604	1,276	—29,701
	10 mos.	175	2,171,000	25,000	2,250,200	501,704	309,769	24,091	927,135	1,803,711	80.2	446,489	180,132	9,014	216,931
Elgin, Joliet & Eastern	Oct.	392	1,635,157	22	1,969,228	186,589	407,573	16,362	908,211	1,586,024	80.5	383,204	197,386	128,159	300,067
	10 mos.	392	22,862,608	364	26,818,593	2,674,549	7,376,616	172,150	9,790,777	20,660,704	77.0	6,157,889	2,982,851	2,380,203	2,733,052
Erie	Oct.	2,243	8,497,115	1,234,389	10,513,970	2,147,449	7,730,744	252,443	4,686,635	15,617,215	148.5	—5,103,245	Cr.6,558,977	942,475	1,470,104
	10 mos.	2,243	101,064,380	10,771,611	119,711,652	14,260,544	27,842,598	2,380,690	48,307,495	98,716,329	82.5	20,995,323	1,749,139	12,810,348	16,708,637
Florida East Coast	Oct.	682	980,388	817,504	1,991,861	325,513	377,113	49,974	660,873	1,541,666	77.4	450,195	118,820	286,278	296,798
	10 mos.	682	12,007,614	10,870,573	24,997,887	3,328,225	3,378,995	578,273	7,600,132	16,190,717	64.8	8,807,170	3,865,323	4,091,030	5,182,833
Georgia Railroad	Oct.	328	558,126	132,781	737,080	89,501	143,012	21,060	316,848	593,389	80.5	143,691	33,877	104,834	229,622
	10 mos.	328	6,097,858	1,525,078	8,062,354	954,184	1,389,218	221,852	3,194,234	5,988,992	74.3	2,073,362	331,913	1,727,696	2,510,918
Georgia & Florida	Oct.	408	174,720	5,085	184,697	48,848	23,237	10,068	75,690	165,079	89.4	19,618	61,145	—2,231	—5,493
	10 mos.	408	1,698,913	50,026	1,798,043	469,787	265,370	106,878	661,036	1,578,119	87.8	219,924	107,553	6,436	107,954
Grand Trunk Western	Oct.	1,026	2,457,000	535,000	3,172,000	522,360	540,354	38,211	1,227,863	2,445,623	77.1	726,377	76,484	628,978	631,061
	10 mos.	1,026	25,204,000	3,715,000	30,916,000	5,637,076	5,228,728	376,461	12,199,743	24,547,026	79.4	2,368,974	1,922,565	4,124,306	4,332,645
Canadian National Lines in New England	Oct.	172	135,400	7,100	163,700	59,504	19,887	2,225	105,861	202,568	123.7	—38,868	21,189	—93,382	—125,482
	10 mos.	172	1,590,000	125,800	1,953,800	545,877	272,641	22,762	989,867	2,051,478	105.0	—97,678	211,890	—709,345	—948,435
Great Northern	Oct.	8,371	15,121,273	1,860,675	18,317,167	3,461,801	6,548,626	241,429	5,775,448	16,562,636	90.4	1,754,531Cr.	2,536,433	4,032,544	3,803,494
	10 mos.	8,371	144,549,535	16,427,309	173,751,407	29,790,801	39,242,271	2,364,300	48,301,731	124,437,325	71.6	49,314,082	19,522,608	29,112,652	26,843,176
Green Bay & Western	Oct.														
	10 mos.														
Gulf & Ship Island	Oct.	259	124,431	59,087	202,090	51,859	36,278	2,709	95,030	191,784	84.9	10,306	117,968	—20,680	—12,634
	10 mos.	259	2,038,957	449,103	2,761,280	515,445	308,642	28,440	986,632	1,915,772	69.4	845,508	381,806	308,438	306,445

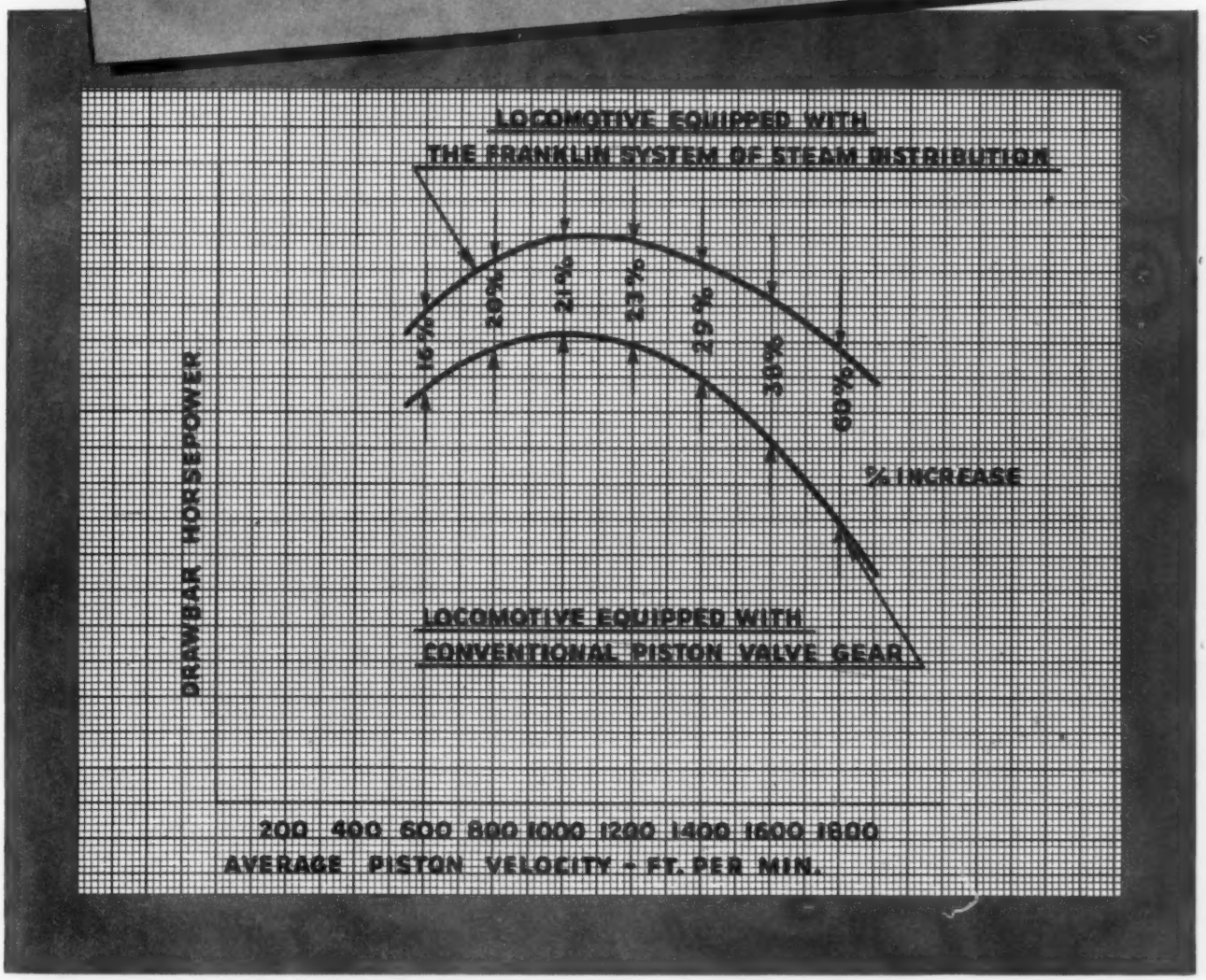
Cr. = Credit.

(Table continued on next left-hand page)

Increase in Drawbar Horsepower

obtained with
typical application of

THE FRANKLIN SYSTEM of STEAM DISTRIBUTION



Both curves are established on the basis of the same amount of steam to the cylinders. The Franklin System assures a substantial increase in horsepower output and economy, for either passenger or high speed freight service.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.
NEW YORK • CHICAGO
In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	1944
Gulf, Mobile & Ohio	Oct.	1,945	$2,603,168	$256,619	$2,967,240	$837,684	$582,489	$95,654	$979,105	$2,632,980	88.7	$334,260	$173,414	—$55,197	398,435
	10 mos.	1,944	28,994,737	2,390,183	32,427,029	5,593,375	5,625,006	881,064	9,122,993	22,521,947	69.5	9,905,082	5,267,580	3,021,463	3,904,240
Illinois Central	Oct.	4,822	12,464,450	2,470,880	16,096,062	2,749,986	2,932,975	217,398	5,070,089	11,667,862	72.5	4,428,200	2,779,305	1,622,373	1,528,482
	10 mos.	4,823	137,803,954	28,455,099	177,683,612	26,490,003	31,849,065	2,200,437	52,474,989	119,900,549	67.5	57,783,063	36,160,493	19,845,300	20,671,796
Yazoo & Mississippi Valley	Oct.	1,524	1,389,701	248,447	1,770,544	567,701	287,024	37,964	892,847	1,871,174	105.7	—100,630	Cr.70,253	—106,853	514,363
	10 mos.	1,524	22,488,859	3,321,352	27,236,447	5,319,740	3,321,218	379,760	8,794,231	18,731,654	68.8	8,504,793	4,384,735	3,150,291	4,279,387
Illinois Central System	Oct.	6,346	13,854,151	2,719,327	17,866,606	3,317,687	3,219,999	255,362	5,962,936	13,539,036	75.8	4,327,570	2,711,248	1,515,432	2,042,757
	10 mos.	6,347	160,292,813	31,776,451	204,920,059	31,809,743	35,170,283	2,580,197	61,269,220	138,632,203	67.7	66,287,856	40,598,220	23,043,719	24,998,312
Illinois Terminal	Oct.	476	602,824	151,025	837,764	129,974	109,771	20,581	321,004	609,693	72.78	228,071	109,052	98,327	152,527
	10 mos.	476	6,829,694	1,717,138	9,330,868	1,140,342	1,149,580	200,125	2,989,663	5,755,792	61.69	3,575,076	2,228,966	1,119,241	1,197,734
Kansas City Southern	Oct.	890	1,928,145	242,292	2,361,611	415,662	541,460	65,382	747,248	1,913,046	81.0	448,565	Cr.407,000	766,633	737,329
	10 mos.	890	26,647,190	2,740,994	31,429,789	4,105,600	4,447,468	653,818	8,750,777	19,244,356	61.2	12,185,433	4,923,000	5,371,679	5,092,774
Kansas, Oklahoma & Gulf	Oct.	328	288,664	1,490	294,243	60,212	28,219	11,976	78,613	192,235	65.3	102,008	53,983	24,737	107,768
	10 mos.	328	3,659,953	18,667	3,714,556	523,629	269,882	103,151	823,817	1,839,969	49.5	1,874,587	845,289	775,641	827,423
Lake Superior & Ishpeming	Oct.	156	298,941	101	363,760	44,100	31,798	636	68,812	153,401	42.2	210,359	79,821	135,894	26,903
	10 mos.	156	2,212,491	1,362	2,677,480	361,631	315,602	7,053	553,462	1,318,504	49.2	1,358,976	706,294	738,441	749,645
Lehigh & Hudson River	Oct.	96	199,680	Dr. 7	200,472	47,692	41,699	5,589	66,602	168,848	84.2	31,624	903	17,065	17,186
	10 mos.	96	2,581,693	Dr. 988	2,587,730	423,805	413,318	55,548	817,039	1,779,664	68.8	808,066	357,866	224,815	222,330
Lehigh & New England	Oct.	190	568,991	.....	571,969	58,336	138,360	8,803	164,939	392,555	68.6	179,414	84,157	105,273	111,678
	10 mos.	190	4,725,460	.....	4,774,707	537,545	1,321,184	78,684	1,516,272	3,655,860	76.6	1,118,847	551,112	757,069	1,124,390
Lehigh Valley	Oct.	1,254	4,693,214	668,065	5,800,712	852,372	1,160,114	116,139	2,314,898	4,662,635	80.4	1,138,077	369,091	564,761	1,563,512
	10 mos.	1,259	56,295,118	6,651,950	67,143,878	9,392,399	12,371,993	1,206,547	27,511,431	52,769,882	78.6	14,373,996	6,165,530	4,361,538	10,695,687
Louisiana & Arkansas	Oct.	834	1,091,118	115,006	1,247,236	71,584	228,235	35,305	371,440	748,549	60.0	498,687	266,302	156,966	317,664
	10 mos.	834	14,658,412	1,434,359	16,623,540	2,528,924	1,935,267	351,522	3,853,929	9,170,235	55.2	7,455,305	4,486,764	2,184,405	2,045,360
Louisville & Nashville	Oct.	4,739	10,612,459	2,458,811	14,495,977	1,873,422	3,433,464	218,197	5,147,702	11,274,224	77.8	3,221,753	1,794,193	1,795,043	1,924,622
	10 mos.	4,755	127,207,370	30,713,607	168,393,829	19,501,748	32,220,731	2,214,216	54,195,224	113,728,440	67.5	54,665,389	38,120,545	20,126,523	20,533,652
Maine Central	Oct.	988	1,341,702	306,396	1,767,843	539,459	277,235	14,098	292,081	1,475,395	83.5	292,448	138,941	143,384	159,250
	10 mos.	988	13,296,611	3,017,759	17,509,355	4,162,321	3,093,113	137,713	6,144,045	14,048,628	80.2	3,460,727	1,567,461	1,471,913	1,536,056
Midland Valley	Oct.	334	129,513	Dr. 60	132,094	31,440	10,648	2,689	50,359	100,217	75.9	31,877	4,456	19,380	26,387
	10 mos.	334	1,413,318	1,012	1,440,746	295,985	137,844	25,239	475,752	982,033	68.2	458,713	133,023	234,428	204,227
Minneapolis & St. Louis	Oct.	1,408	1,399,631	30,562	1,486,253	193,208	1,139,550	72,418	422,622	1,887,244	127.0	—400,991	Cr.186,454	—300,862	112,154
	10 mos.	1,408	12,246,420	381,235	13,125,660	2,493,510	3,010,537	671,496	3,963,428	10,736,602	81.8	2,389,058	1,271,833	981,607	1,400,848
Minneapolis, St. Paul & Sault Ste. Marie	Oct.	3,224	3,269,296	164,604	3,616,714	431,723	398,887	43,460	1,067,554	2,017,845	55.8	1,598,869	620,792	851,084	482,134
	10 mos.	3,224	20,414,248	1,549,447	23,596,891	4,019,224	4,424,818	399,894	8,735,771	18,276,313	77.5	5,320,578	3,022,120	2,571,152	5,382,463
Duluth, South Shore & Atlantic	Oct.	550	293,203	19,414	343,513	83,255	61,204	11,142	133,452	297,540	86.6	45,973	21,581	15,908	56,998
	10 mos.	550	3,038,732	235,329	3,539,813	711,594	585,598	111,426	1,369,612	2,859,586	80.8	680,227	183,526	465,437	575,821
Spokane International	Oct.	152	96,572	2,647	105,888	43,527	26,613	2,925	38,521	118,219	111.7	—12,331	Cr.39,267	17,149	16,954
	10 mos.	152	1,626,519	43,741	1,763,897	434,126	187,306	32,201	441,297	1,167,122	66.1	596,775	270,588	213,787	196,879
Mississippi Central	Oct.	158	151,655	15,185	170,333	49,879	18,063	8,904	42,497	126,520	74.3	43,813	15,484	11,366	21,365
	10 mos.	158	1,540,953	81,886	1,661,496	351,590	198,909	90,988	418,606	1,129,853	68.0	531,643	180,377	215,331	306,161
Missouri & Arkansas	Oct.	365	139,421	2,065	147,855	51,470	24,798	7,316	77,649	167,430	113.2	—19,575	Cr.68,598	29,552	—10,854
	10 mos.	365	1,768,151	22,331	1,869,683	635,131	257,884	75,660	881,805	1,919,683	102.7	—50,000	Cr.48,406	—280,571	174,324
Missouri-Illinois	Oct.	172	304,323	623	307,236	47,080	37,955	4,345	90,621	190,668	62.1	116,568	64,841	30,863	73,139
	10 mos.	172	2,957,370	6,774	2,978,660	474,736	375,236	44,167	760,230	1,720,860	57.8	1,257,800	826,141	356,603	470,832
Missouri-Kansas-Texas Lines	Oct.	3,253	3,656,935	1,209,883	5,410,531	1,275,021	786,072	160,713	1,800,176	4,263,054	78.8	1,147,477	475,894	438,244	509,396
	10 mos.	3,253	56,748,295	10,808,216	73,030,132	15,859,468	8,966,267	1,486,282	20,282,820	48,991,845	67.1	24,038,287	14,411,565	5,962,319	5,344,180
Missouri Pacific	Oct.	7,082	12,515,583	2,964,472	16,947,452	2,489,178	2,494,969	316,913	5,419,179	11,308,999	66.7	5,638,453	2,763,186	2,252,941	3,147,788
	10 mos.	7,082	145,933,823	28,305,557	188,216,035	23,712,736	27,424,543	3,077,217	54,291,106	114,073,512	60.6	74,142,523	41,081,475	26,017,011	28,753,907
Gulf Coast Lines	Oct.	1,734	2,193,040	273,022	2,594,539	471,565	268,091	58,598	800,138	1,681,987	64.8	912,552	485,404	276,598	632,827
	10 mos.	1,734	30,832,865	2,952,489	35,187,729	5,850,615	3,562,541	565,676	9,258,429	20,110,754	57.2	15,076,975	8,007,757	4,425,930	5,808,930
International-Great Northern	Oct.	1,110	1,745,030	501,515	2,494,325	390,860	309,498	38,726	831,964	1,673,840	67.1	820,485	377,317	274,847	289,848
	10 mos.	1,110	17,563,741	4,730,280	24,719,787	4,552,241	3,422,763	376,127	8,257,794	17,592,558	71.2	7,127,229	2,577,010	2,846,562	2,875,396
Monongahela	Oct.	170	226,133	1,876	232,812	52,740	26,669	568	94,479	178,194	76.5	54,618	58,346	—54,756	90,796
	10 mos.	170	4,711,285	22,744	4,769,364	661,722	452,937	6,440	1,344,694	2,504,640	52.5	2,264,724	618,154	771,837	1,062,139

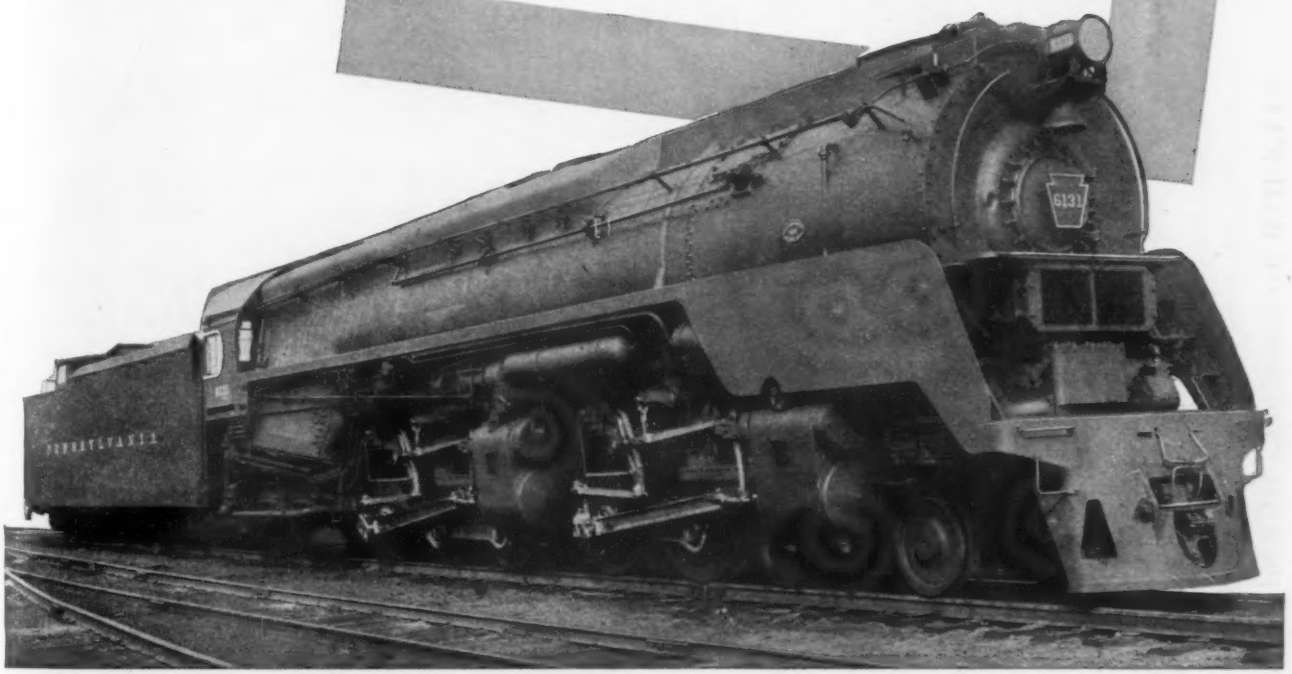
Cr. = Credit.

(Table continued on next left-hand page)

modern **STEAM POWER**

utilizes the advantages of

SECURITY CIRCULATORS



The Pennsylvania Railroad's Q-2 class locomotive is designed to develop more power in its working range — at speeds over 20 miles an hour — than any steam locomotive previously built. It can haul 125 loaded freight cars faster than 50 miles an hour.

The boiler of each Q-2 class locomotive is equipped with nine Security Circulators.

AMERICAN ARCH COMPANY, INC.

NEW YORK • CHICAGO

SECURITY CIRCULATOR DIVISION

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	1944
Montour	Oct.	51	$140,455	.....	$141,266	$28,648	$67,043	$1,036	$47,287	$152,494	107.9	—$11,228	$24,622	$18,817	$62,727
	10 mos.	**51**	**2,341,696**	.....	**2,353,641**	211,833	609,369	10,102	723,892	1,641,486	69.7	712,155	546,281	557,713	659,130
Nashville, Chattanooga & St. Louis	Oct.	1,071	2,020,011	$495,448	2,825,148	649,833	729,468	80,695	1,050,652	2,617,923	92.7	207,225	94,535	75,259	237,313
	10 mos.	1,071	25,177,566	5,032,756	32,683,770	5,641,558	6,862,734	841,933	10,662,807	24,950,525	76.3	7,733,245	4,650,183	2,955,040	3,057,854
New York Central	Oct.	10,749	31,674,034	13,415,581	51,814,639	9,177,664	10,586,823	761,939	20,879,219	43,805,104	84.5	8,009,535	2,453,241	4,381,723	4,955,816
	10 mos.	10,749	360,805,434	135,797,841	552,832,857	85,368,713	109,083,293	7,449,981	214,165,216	439,118,661	79.4	113,714,196	51,960,669	46,440,907	56,538,752
Pittsburgh & Lake Erie	Oct.	229	1,663,509	96,047	1,843,467	392,347	875,233	45,548	951,423	2,380,902	129.2	—537,435	Cr.145,137	172,790	392,869
	10 mos.	229	24,165,844	1,062,056	26,180,410	3,516,587	9,341,580	449,654	9,499,181	23,934,136	91.4	2,246,274	4,034,851	3,751,682	4,640,652
New York, Chicago & St. Louis	Oct.	1,687	5,304,163	386,709	5,843,299	2,044,422	11,518,967	153,103	2,261,099	16,189,896	277.1	—10,346,597	Cr.8,840,490	—1,808,962	1,023,592
	10 mos.	1,687	69,943,120	2,827,060	74,399,801	10,614,456	23,610,026	1,581,392	24,538,950	62,506,568	84.0	11,893,233	Cr.3,511,795	11,554,814	9,398,995
New York, New Haven & Hartford	Oct.	1,838	6,193,750	6,358,534	13,755,008	2,038,893	1,859,286	191,146	5,119,059	9,957,035	72.4	3,797,973	720,000	2,058,540	1,246,464
	10 mos.	1,838	71,655,407	62,915,543	146,060,807	18,901,038	23,450,049	1,654,201	52,489,738	103,850,300	71.1	42,210,507	15,850,005	15,681,900	18,387,523
New York Connecting	**Oct.**	21	155,303	.....	177,579	62,610	10,715	.....	**41,734**	**116,820**	**65.8**	**60,759**	**20,137**	242,240	68,484
	10 mos.	21	1,964,693	.....	2,178,670	516,201	136,931	.....	550,483	1,221,604	56.1	957,066	722,349	1,709,389	1,359,572
New York, Ontario & Western	Oct.	548	465,539	14,789	546,700	97,894	110,731	22,312	297,388	575,469	105.3	—28,769	37,105	—118,879	—111,241
	10 mos.	548	5,949,480	214,429	6,829,831	952,279	1,392,724	221,591	3,785,677	6,651,468	97.4	178,363	401,902	—890,948	—612,297
New York, Susquehanna & Western	Oct.	120	235,891	42,404	290,104	25,498	36,545	5,153	117,404	200,464	69.1	89,640	27,061	31,922	90,723
	10 mos.	120	3,252,345	397,583	3,788,548	329,084	360,918	48,091	1,434,724	2,337,581	61.7	1,450,967	442,123	531,802	796,207
Norfolk & Western	Oct.	2,161	7,605,038	1,105,054	9,091,276	1,558,252	2,556,343	169,627	2,838,450	7,458,736	82.0	1,632,540	952,401	1,585,436	2,196,466
	10 mos.	2,159	107,534,018	11,426,286	122,663,424	14,836,677	25,612,893	1,718,767	29,936,461	75,459,045	61.5	47,204,379	35,017,931	20,104,000	21,579,144
Norfolk Southern	Oct.	727	580,489	18,309	620,554	140,824	75,532	29,798	229,339	503,226	81.1	117,328	37,892	43,574	60,849
	10 mos.	727	5,970,011	246,984	6,416,195	1,517,105	803,382	308,568	2,254,667	5,177,795	80.7	1,238,400	473,140	463,460	635,180
Northern Pacific	Oct.	6,873	11,106,778	1,829,274	14,046,468	2,425,389	2,560,545	186,551	4,000,463	9,744,920	69.4	4,301,548	454,269	4,021,671	2,608,349
	10 mos.	6,870	98,993,302	16,228,248	125,613,965	21,720,144	25,842,042	1,906,222	38,544,726	93,429,488	74.4	32,184,477	12,814,367	22,621,418	19,299,211
Northwestern Pacific	Oct.	331	488,676	17,684	532,748	138,636	64,228	3,515	212,444	427,986	80.3	104,762	27,882	50,161	165,574
	10 mos.	331	4,914,587	170,542	5,345,930	1,638,207	635,887	31,752	1,879,455	4,269,607	79.9	1,076,323	272,735	516,610	589,765
Oklahoma City-Ada-Atoka	Oct.	132	83,696	293	84,539	28,404	3,221	1,098	24,242	60,018	71.0	24,521	Cr.4,372	14,043	33,917
	10 mos.	132	992,591	2,919	1,005,514	244,213	41,023	11,594	261,278	596,445	59.3	409,069	135,542	133,181	297,908
Pennsylvania*	Oct.	10,112	43,406,608	22,410,600	72,169,675	10,154,821	14,325,038	986,950	31,072,963	59,822,885	82.9	12,346,790	5,221,034	6,257,256	10,054,199
	10 mos.	10,112	523,533,880	211,885,367	798,328,871	96,809,991	153,814,426	10,404,709	331,249,215	621,570,510	77.9	176,758,361	82,968,234	85,119,619	92,426,396
Long Island	Oct.	376	1,145,415	2,323,138	3,682,410	520,349	518,092	26,323	1,698,482	2,841,373	77.2	841,037	410,280	153,580	189,022
	10 mos.	376	11,660,377	24,898,665	38,579,367	5,064,249	5,281,063	224,637	16,887,961	28,107,556	72.9	10,471,811	4,801,022	2,941,914	2,674,628
Pennsylvania-Reading Seashore Lines	**Oct.**	392	461,219	244,756	739,843	176,129	107,230	8,146	446,272	759,163	102.6	—19,320	86,764	—211,472	—129,382
	10 mos.	392	4,684,297	5,006,258	10,069,064	1,592,418	989,036	83,680	4,833,068	7,725,934	76.7	2,343,130	998,873	96,083	637,497
Pere Marquette	Oct.	1,949	2,992,170	226,436	3,453,674	780,728	4,470,884	75,435	1,460,067	6,957,695	201.5	—3,504,021	Cr.1,925,763	—1,676,338	431,816
	10 mos.	**1,949**	**39,135,064**	**2,898,102**	**44,379,299**	**8,006,214**	**12,264,953**	**810,681**	**16,516,115**	**39,325,505**	**88.6**	**5,053,794**	**935,496**	**3,303,023**	**4,268,797**
Pittsburg & Shawmut	Oct.	97	112,218	.....	113,395	46,694	22,822	1,502	34,034	111,427	98.3	1,968	2,933	—4,264	—13,340
	10 mos.	**97**	**1,205,491**	.....	**1,213,293**	300,205	234,771	18,155	358,756	966,052	**79.6**	**247,241**	**44,131**	**177,498**	**176,614**
Pittsburgh & West Virginia	Oct.	136	350,800	.....	369,389	94,329	108,489	26,162	129,852	386,152	104.5	—16,763	Cr.2,024	10,160	220,458
	10 mos.	136	5,660,501	104	5,839,161	1,016,170	1,088,147	244,350	1,572,140	4,195,271	71.8	1,643,890	724,353	1,124,731	1,528,560
Pittsburg, Shawmut & Northern	Oct.	190	62,827	.....	63,942	21,818	14,409	895	32,382	74,434	116.4	—10,492	5,478	—18,674	—3,309
	10 mos.	190	841,119	.....	854,426	215,036	181,517	10,306	403,388	861,892	100.9	—7,466	62,317	—131,429	—65,930
Reading	Oct.	1,366	7,008,820	1,008,662	6,478,198	1,923,010	2,092,109	88,540	3,390,476	7,744,347	91.3	733,851	Cr.53,574	852,754	1,146,858
	10 mos.	1,367	79,212,650	9,218,580	92,811,216	13,365,958	20,608,185	865,677	32,920,454	70,026,390	75.5	22,784,826	11,567,148	11,336,335	11,857,298
Richmond, Fredericksburg & Potomac	Oct.	118	1,107,055	1,139,471	2,456,016	337,984	305,265	13,761	844,445	1,608,924	65.5	847,092	571,323	176,911	256,942
	10 mos.	118	13,966,193	11,613,079	27,937,039	3,581,150	5,399,872	142,863	8,159,883	18,366,588	65.7	9,570,451	6,501,516	1,769,660	2,745,580
Rutland	Oct.	407	292,346	47,171	421,652	68,687	84,106	12,146	228,476	408,203	96.8	13,449	26,419	—20,093	26,889
	10 mos.	407	2,955,310	634,793	4,312,509	692,796	856,354	125,794	2,250,743	4,076,733	94.5	235,776	265,127	—63,141	71,039
St. Louis-San Francisco	Oct.	4,645	6,518,822	1,679,618	8,959,032	1,650,664	5,425,239	166,078	3,100,413	10,629,221	118.6	—1,670,189	Cr.2,004,620	315,175	1,790,879
	10 mos.	4,646	70,281,277	17,665,996	95,422,768	13,141,173	20,944,748	1,702,524	31,170,987	70,427,226	73.8	24,995,542	12,008,361	12,915,918	14,156,808
St. Louis, San Francisco & Texas	Oct.	160	223,294	20,901	258,403	43,835	33,179	11,781	117,326	214,176	82.9	44,227	5,592	8,430	15,091
	10 mos.	160	2,706,044	387,686	3,203,953	380,582	332,994	116,573	1,148,969	2,056,260	64.2	1,147,693	573,910	294,558	341,924

(Table continued on next left-hand page)

Cr. = Credit.

* Total operating revenues for the Pennsylvania during the month of September were incorrectly reported in the *Railway Age* of November 10 as $721,114,367. The amount should have read $72,114,367.

Surmounting GRADES

In many sections of the country, train operation in days gone by necessitated the use of more than one locomotive. But with the advance in the development of steam motive power, the modern locomotive of today pulls the same tonnage, and some times more, over these same grades. These modern steam locomotives, with well balanced boilers, are performing amazing feats daily.

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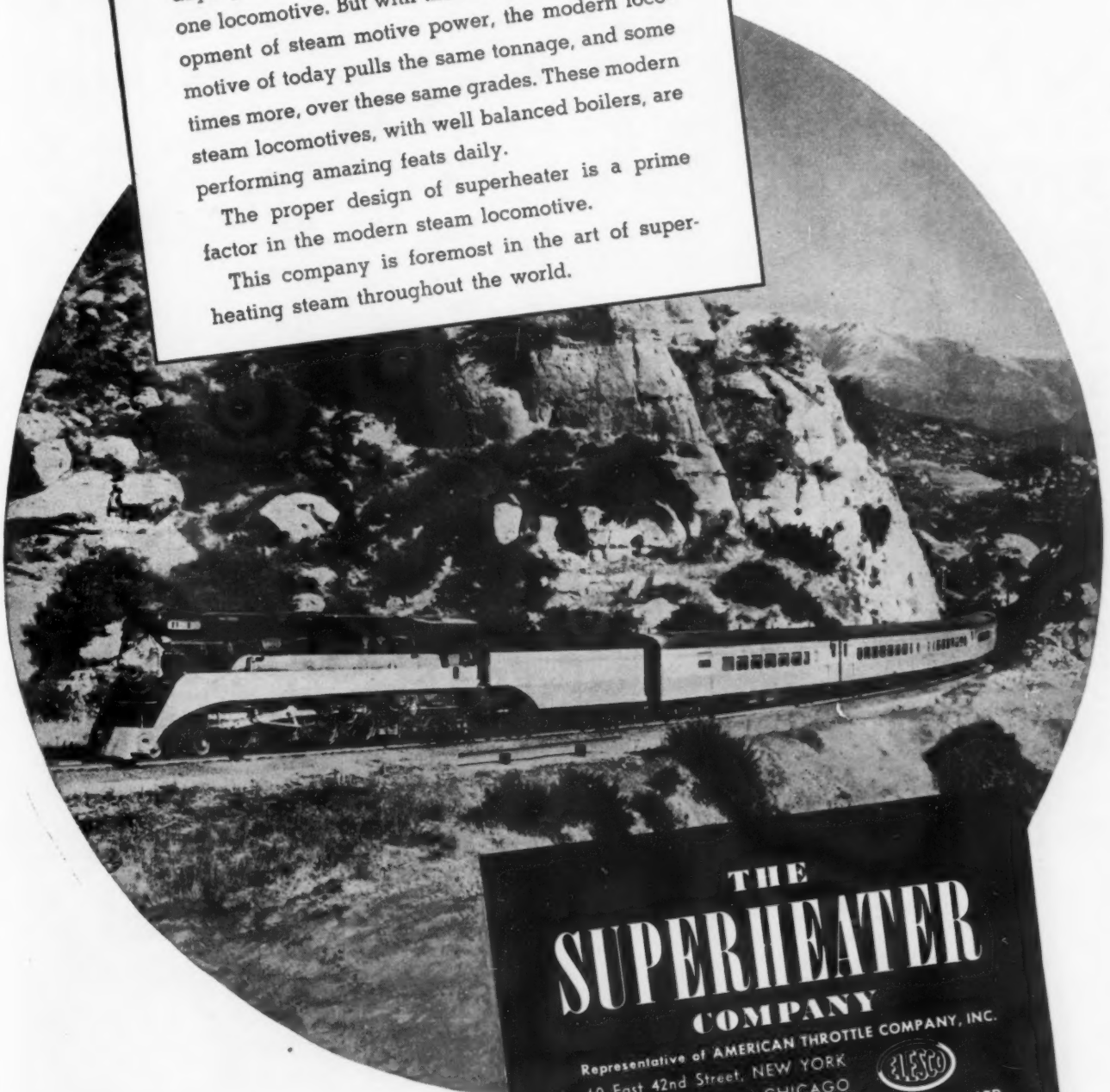

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Cr. = Credit.
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1945

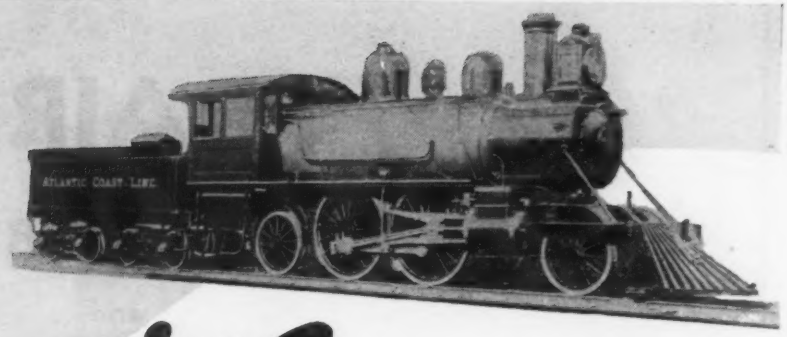
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1945—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1945	Net railway operating income 1944
St. Louis Southwestern Lines	Oct.														
	10 mos.														
Seaboard Air Line	Oct.	4,168	$6,248,029	$2,945,845	$10,217,454	$1,403,623	$1,795,173	$237,753	$3,353,880	$7,246,597	70.9	$2,970,857	$1,095,000	$1,535,415	$1,867,205
	10 mos.	4,170	70,080,662	32,392,314	110,361,461	15,295,204	19,010,690	2,446,806	34,293,988	75,798,954	68.7	34,562,507	14,870,000	15,949,751	18,849,003
Southern Railway	Oct.	6,505	13,548,254	4,969,797	19,919,647	2,504,669	2,918,151	267,509	6,431,486	12,825,549	64.4	7,094,098	4,172,087	2,603,828	2,643,933
	10 mos.	6,505	149,948,535	48,957,551	212,018,062	26,589,716	35,198,925	2,663,171	62,686,883	133,975,094	63.2	78,042,968	50,551,673	24,400,376	27,362,298
Alabama Great Southern	Oct.	315	1,135,437	329,408	1,554,382	163,421	265,272	24,856	443,285	953,116	61.3	601,266	432,703	161,227	136,036
	10 mos.	315	12,088,688	3,904,682	17,063,162	1,890,483	3,057,803	278,706	5,263,458	11,085,375	65.0	5,977,787	4,097,737	1,381,465	1,609,514
Cincinnati, New Orleans & Texas Pacific	Oct.	337	1,641,067	633,731	2,421,665	283,150	539,313	43,269	739,482	1,697,809	70.1	723,856	574,322	237,699	411,808
	10 mos.	337	21,208,995	5,929,481	28,734,223	3,169,071	6,487,464	419,797	7,982,319	18,988,768	66.1	9,745,455	6,837,483	3,603,779	4,135,725
Georgia Southern & Florida	Oct.	397	289,670	215,508	549,756	70,481	67,025	2,991	178,547	338,982	61.7	210,774	102,510	71,314	65,451
	10 mos.	397	2,763,309	2,340,500	5,623,223	712,865	757,707	28,422	1,764,844	3,450,831	61.4	2,172,392	1,169,057	660,600	586,241
New Orleans & Northeastern	Oct.	204	740,801	209,385	1,002,375	141,269	119,692	12,048	213,267	523,246	52.2	479,129	288,474	123,829	102,010
	10 mos.	204	7,648,052	1,999,038	10,165,814	1,379,842	1,209,394	141,618	2,486,148	5,611,405	55.2	4,554,409	2,812,780	996,440	985,975
Southern Pacific	Oct.	8,247	25,296,847	10,595,147	39,441,030	6,441,833	11,859,157	658,303	13,288,318	34,637,095	87.8	4,803,935	Cr.74,075	3,454,047	3,103,938
	10 mos.	8,247	283,409,876	90,456,781	409,537,747	57,656,400	84,498,029	6,666,254	131,917,281	302,685,707	73.9	106,852,040	60,714,250	30,235,312	33,889,029
Texas & New Orleans	Oct.	4,322	6,484,164	2,096,974	9,288,986	1,686,629	1,623,696	159,442	2,766,322	6,638,679	71.5	2,650,307	862,015	1,343,573	1,133,621
	10 mos.	4,327	74,817,987	20,660,537	101,921,080	14,434,304	14,244,155	1,589,154	29,170,724	63,306,690	62.1	38,614,390	20,938,584	12,437,850	10,640,436
Spokane, Portland & Seattle	Oct.	944	1,220,351	124,856	1,448,309	1,180,797	483,206	13,743	615,615	2,361,276	163.0	—912,967	Cr.339,142	—717,240	348,602
	10 mos.	944	19,308,625	1,599,802	22,109,448	6,433,093	2,555,306	142,841	6,324,662	16,112,367	72.9	5,997,081	1,474,713	2,808,735	3,348,249
Tennessee Central	Oct.	286	297,650	17,206	335,565	67,643	60,017	6,392	117,736	265,983	79.3	69,582	Cr.2,697	58,968	9,492
	10 mos.	286	2,783,641	295,187	3,258,193	628,586	588,346	67,957	1,182,984	2,615,443	80.3	642,750	230,226	255,406	412,435
Texas & Pacific	Oct.	1,873	3,484,399	1,454,210	5,461,211	804,903	647,831	113,702	1,555,736	3,415,287	62.5	2,045,924	935,005	925,327	584,115
	10 mos.	1,879	44,668,496	15,015,045	65,070,459	8,744,995	8,367,037	1,147,911	16,400,986	37,443,042	57.5	27,627,417	16,722,657	8,666,436	5,599,958
Texas Mexican	Oct.	162	167,386	316	190,921	35,837	22,755	4,455	45,432	119,190	62.4	71,731	20,102	41,591	—32,033
	10 mos.	162	1,657,004	6,434	1,861,370	421,230	182,514	41,624	477,842	1,231,440	66.2	629,930	201,753	325,116	428,812
Toledo, Peoria & Western	Oct.														
	10 mos.														
Union Pacific System	Oct.	9,778	28,476,678	9,364,664	41,463,942	7,674,786	13,997,689	586,607	12,255,832	36,553,508	88.2	4,910,434	1,956,430	1,418,383	3,329,698
	10 mos	9,780	316,897,998	79,008,262	429,549,367	56,846,260	90,895,158	6,070,627	119,480,594	292,249,920	68.0	137,299,447	94,224,561	31,204,699	31,112,401
Utah	Oct.	111	154,618	.....	154,691	9,147	46,167	585	43,700	103,902	67.2	50,789	25,979	29,876	18,357
	10 mos.	111	1,183,225	.....	1,183,566	145,059	395,837	5,470	357,404	947,410	80.0	236,156	152,393	151,463	113,508
Virginian	Oct.	656	1,530,519	7,755	1,612,132	270,439	644,236	27,381	416,666	1,415,000	87.8	197,132	5,500	329,788	562,871
	10 mos.	657	23,068,966	95,413	24,058,164	2,777,273	6,767,127	268,965	5,283,484	15,669,967	65.1	8,388,197	3,189,900	6,444,729	5,977,784
Wabash	Oct.	2,393	5,642,500	737,334	6,792,087	1,061,079	960,527	179,759	2,415,089	4,881,455	71.9	1,910,632	911,457	683,955	860,213
	10 mos.	2,393	64,769,111	8,370,253	77,762,029	10,689,238	10,434,364	1,785,613	25,159,064	50,636,251	65.1	27,125,778	15,661,424	7,526,589	7,533,299
Ann Arbor	Oct.	294	456,661	7,059	476,072	67,410	93,793	16,883	200,413	391,232	82.2	84,840	42,971	41,664	59,806
	10 mos.	294	4,787,262	104,683	5,071,458	661,337	920,826	167,290	2,067,861	3,941,469	77.7	1,129,989	534,989	567,861	574,025
Western Maryland	Oct.	840	2,270,324	40,185	2,407,837	381,405	547,239	47,777	717,229	1,804,999	75.0	602,838	146,000	532,240	651,546
	10 mos.	840	27,861,143	394,264	29,086,740	4,488,969	6,131,644	469,120	7,781,738	19,884,173	68.4	9,202,567	4,499,000	5,315,728	5,707,493
Western Pacific	Oct.	1,195	4,673,688	1,013,427	5,872,044	749,695	666,864	96,383	1,501,214	3,206,837	54.6	2,665,207	1,673,868	754,985	779,118
	10 mos.	1,195	41,470,424	7,549,227	50,739,319	6,829,124	6,804,981	930,659	14,140,356	30,745,976	60.6	19,993,343	12,364,306	5,602,826	5,966,346
Wheeling & Lake Erie	Oct.	505	1,441,987	.....	1,519,070	302,345	3,280,875	49,751	548,626	4,244,174	279.4	—2,725,104	Cr.2,323,102	—203,236	283,408
	10 mos.	507	20,608,533	25	21,396,032	2,541,120	6,935,220	430,975	6,363,206	16,809,857	78.6	4,586,175	4,004,513	2,400,868	2,764,201
Wisconsin Central	Oct.	1,130	1,666,370	81,251	1,923,995	248,091	300,361	45,304	725,726	1,382,485	71.9	541,510	110,037	300,558	170,234
	10 mos.	1,130	15,423,773	941,503	17,899,397	2,319,924	3,157,375	421,495	6,971,422	13,523,734	75.6	4,375,663	2,057,138	1,946,942	2,645,055

Cr. = Credit.

HSGI
WEAR RESISTING PARTS



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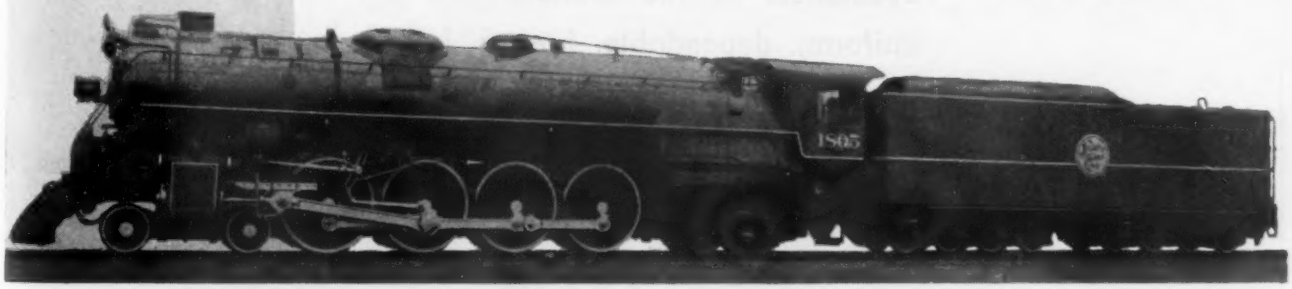

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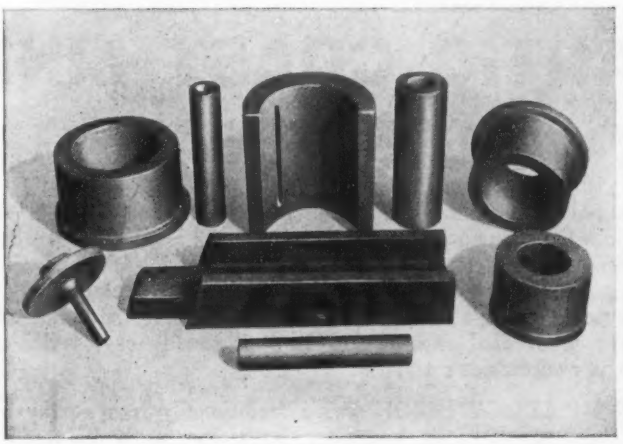

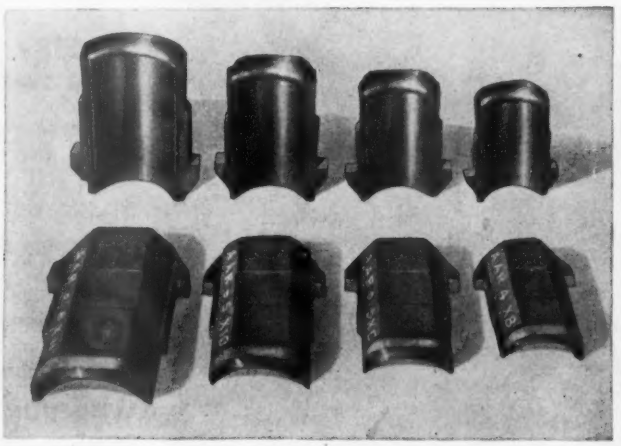

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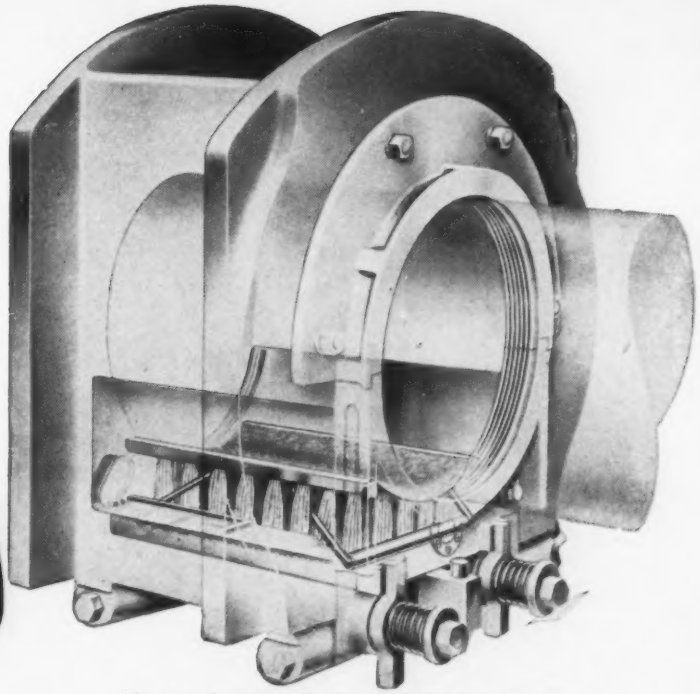

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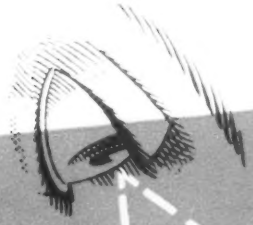

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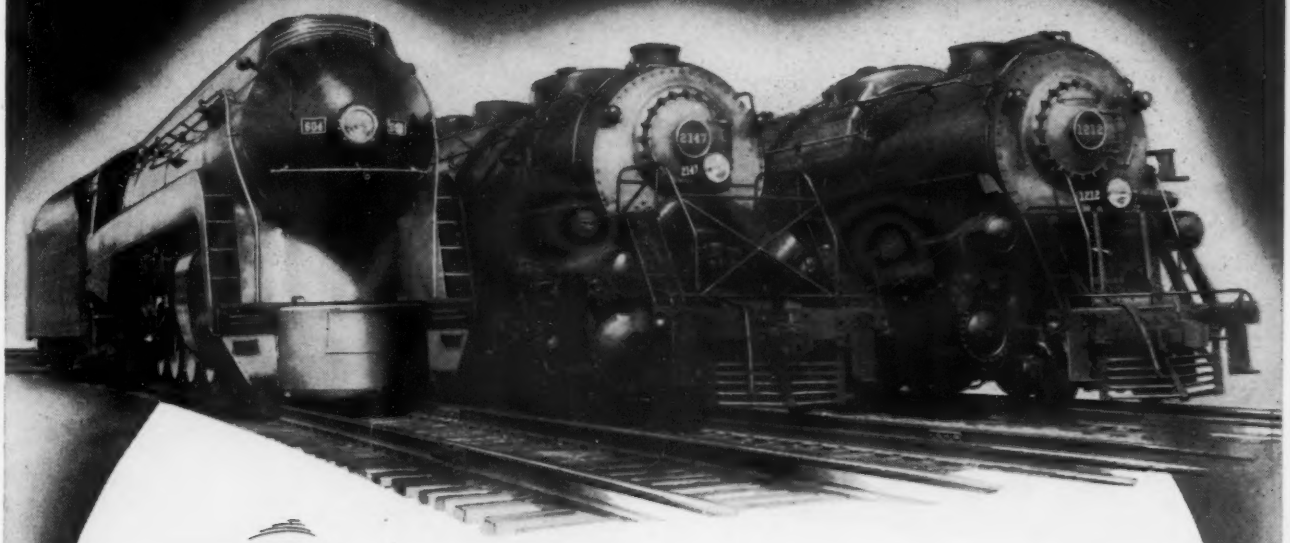

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VICTORY LOAN

The Treasury Department acknowledges with appreciation the publication of this message by

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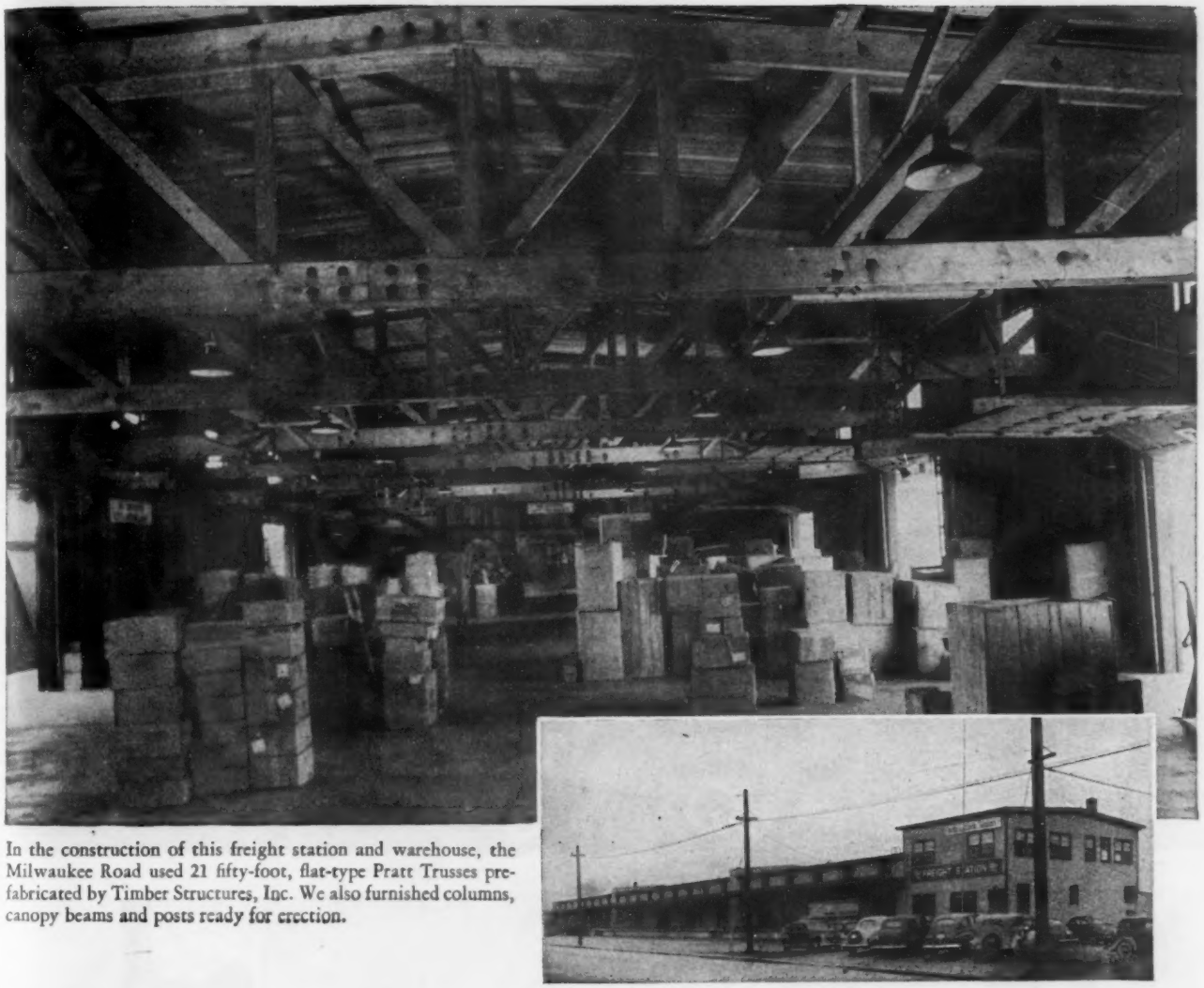

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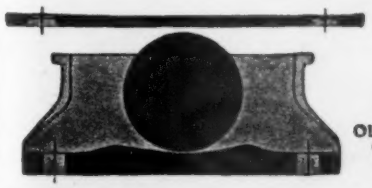

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Index to Advertisers

December 8, 1945

A

Air Reduction Sales Company 10, 11
Aluminum Company of America 8, 9
American Air Filter Co., Inc. 16
American Arch Company, Inc. 45
American Brake Shoe Company 29
American Locomotive Company 6, 7
American Steel Foundries 15
Association of Manufacturers of Chilled Car Wheels 2

B

Baldwin Locomotive Works, The 50, 51
Bethlehem Steel 3

C

Canadian Cardwell Co., Ltd. 28
Cardwell Westinghouse Co. 28
Carey Co., Inc., Thomas F. 58
Caterpillar Tractor Co. 18
Chase & Co., L. C. 33
Classified Advertisements 58

D

Differential Steel Car Company 59
Dulien Steel Products, Inc. 59

E

Electro-Motive Division, General Motors Corporation 42
Ex-Cell-O Corporation, Railroad Division 56

F

Fairbanks, Morse & Co. 25
Franklin Railway Supply Company, Inc. 44

G

General Electric Company 6, 7
General Railway Signal Company ..... Back Cover
General Steel Castings 20, 21
Get Together Department 58
Goodall Fabrics, Inc. 33
Gould Storage Battery Corporation 32
Graybar Electric Co. 19
Griffin Wheel Company 36
Grip Nut Company 35

H

Hunt Company, Robert W. 58
Hunt-Spiller Mfg. Corporation 47
Hyatt Bearings Division, General Motors Corporation 5

I

Iron & Steel Products, Inc. 58

K

Koppers Co., Inc 26

L

Lima Locomotive Works, Incorporated 43

M

Magnus Metal Corporation 49
McInerney Spring and Wire Company 37

N

National Malleable and Steel Castings Co. 24

O

Ohio Locomotive Crane Company 59
Okonite Company, The 59
Otis Elevator Company 52
Oxweld Railroad Service Company, The 23

P

Prairie Brass and Metal Company 48
Purdy Company, The 59

R

Railway Educational Bureau, The 58
Ramapo Ajax Division of American Brake Shoe Company 29
Remington Rand, Systems Division 22
Republic Steel Corporation 31
Reynolds Metals Co. 12, 13

S

Safetee Glass Company 30
Schaefer Equipment Company 27
Sonken-Galamba Corp. 58
Standard Forgings Corp. 4
Standard Stoker Company 53
Steel Founders' Society 57
Stucki Co., A. 59
Superheater Company, The 46
Superior Railway Products Corporation 56
Symington-Gould Corporation, The 61

T

Timber Structures, Incorporated 55
Timken Roller Bearing Company, The 14

U

Union Carbide and Carbon Corporation 23
Union Switch & Signal Co. 40
United States Steel Supply Company 17

V

Vapor Car Heating Co., Inc. 59

W

Westinghouse Air Brake Co. 38
Westinghouse Electric Corporation 34, 50, 51
Wine Railway Appliance Company, The ..... Front Cover

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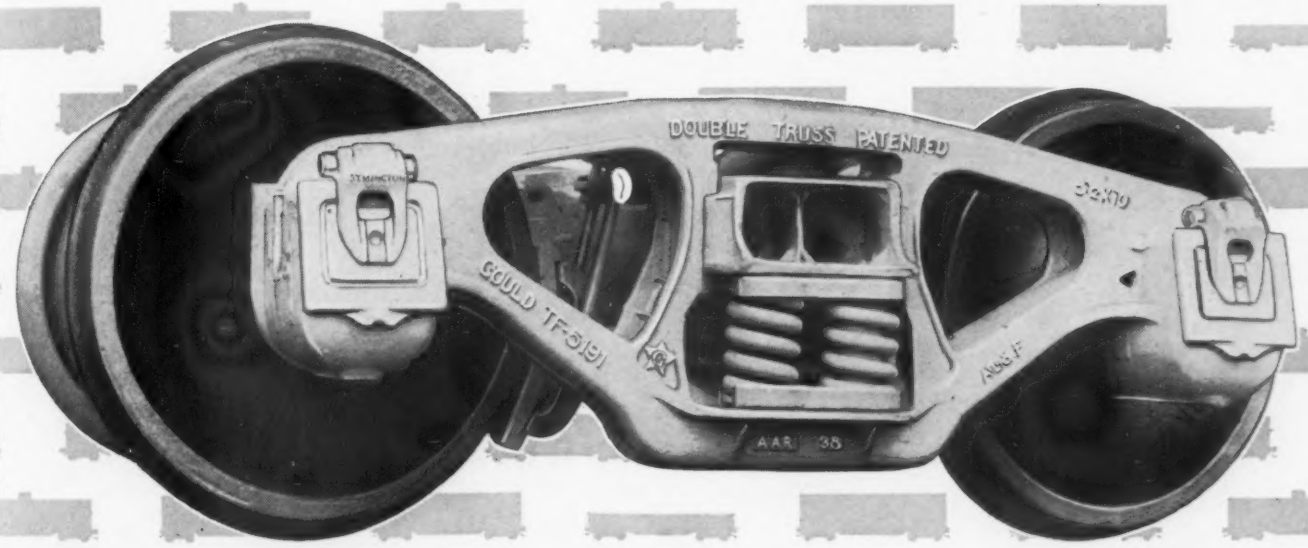

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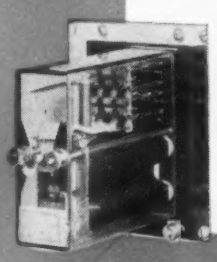
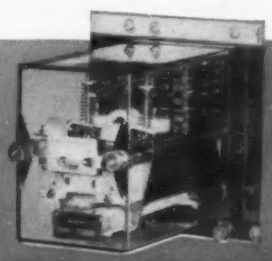
If you have an outmoded and worn interlocker, or a location where consolidation of control over a greater area is desired, it will be to your advantage to investigate the dependability and economy offered with G-R-S ALL RELAY INTERLOCKING.





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